Southeast Asia as a Growth Accelerator for Global Healthcare Firms

Avenues to accelerate growth through expanded patient access









Since about 2022, we have received a growing number of inquiries from global and regional executives about where they should invest next, many times this question can be phrased as "what is the next China". While we believe the boom in healthcare in China was a singularly unique event, when we look around the world, two geographies stand out: India and Southeast Asia.

Our analyst team today forecasts healthcare financing in Southeast Asia to grow 68% over the next five years, a figure that far outpaces most developed and developing markets. However, given the nature of Southeast Asia (there are 11 countries and over 1,200 languages spoken, and approximately 8.5% of the global population), it is important before embarking on large new investments to have a very nuanced understanding of the individual markets, and a well-developed prioritization of where to play and how to win. The opportunities are massive and will only continue to expand as the local populations continue to grow while aging. Meanwhile the local economies are among the fastest growing in the entire world, providing new purchasing power to governments and private individuals.

However, we also know that there are numerous challenges facing patient access to life saving technologies, including a shortage of healthcare professionals, underdeveloped health insurance, a shortage of hospitals and clinics (including key medical equipment), underdeveloped health IT systems, and of course gaps in areas such as regulatory regimes.

Today, the Southeast Asian healthcare markets are undoubtedly at a transformative moment, marked by increasing public and private investment, digital advancements, and an evolving policy landscape. This white paper aims to provide a strategic overview of the market developments, opportunities, and potential risks within the region, focusing on actionable insights for private sector actors to collaborate to break down barriers to access while growing their regional presence and contributing to overall global performance.

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Overview of Our Methodology

In this white paper, which was ideated and executed by FrontierView's Southeast Asia Healthcare analyst team with full editorial independence and sponsorship from our partner of the DKSH, we will bring you a lot of data, curated in a way to provoke new insights and ideas regarding potential investments and investment strategies. However, we will also focus on the stories, perceptions, and understandings that key actors throughout the region have of their own reality and how that is driving behaviors.

We gathered this information via several means, first and foremost, FrontierView's dedicated healthcare research practice gathers, distills, and analyzes key data across global healthcare markets, including Southeast Asia, on an ongoing basis. In as much, we leaned heavily on our Southeast Asia analyst team for their insights and suggestions regarding the data sources, data trends, and data quality.

For the stories, perceptions, and key understandings, we talked to many actors, including nurses, pharmacists, general practitioners, surgeons, hospital executives, medtech leaders, pharma leaders, diagnostic leaders, and of course patients, across the region. While this is not designed as an academic paper, meaning our sample size and interview methodology cannot allow us to make statements of causality, we do believe the quotes and anecdotes that we share throughout this white paper will help paint a picture of the evolving story on the ground, and help guide thinking on new investments to break down access barriers.

Finally, at the end of June 2024, FrontierView together with DKSH hosted an executive roundtable in Singapore. For three hours, we facilitated an interactive conversation with industry leaders to pressure test investment assumptions, discuss perceptions from corporate centers, and brainstorm together on the opportunities to accelerate investment in regional healthcare systems. Here we share some key benchmarking conducted during that session, in addition to the central overarching ideas that are driving investment hypotheses for the region from some of the world largest healthcare firms.



Southeast Asia Healthcare Markets Growing Role in Global Portfolios

Lest we forget, Southeast Asia's 11 countries represent approximately 8.5% percent of the global population. However, from a healthcare expenditure perspective, for the five markets of Indonesia, Malaysia, the Philippines, Thailand, and Vietnam, we see well below average figures at 249 USD per capita (compared to 1,533 global), with total spending amounting to 149.4 USD billion or 1.4% of the global total.

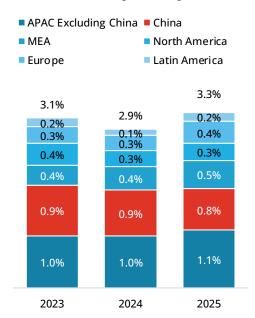
That said, our forecasts show that financing growth in the region as a whole will grow 68% over the next five years, taking per capita spending in USD to 418, while the population reaches 629.5 million.

This contrasts specifically to a slowing China, where the economy has gradually shifted from 6.0% percent growth in 2019 before the pandemic, to a forecast 4.8% in 2024 and 4.5% in 2025, with APAC outside of China now representing the bulk of global growth. As such we have seen a significant increase in foreign direct investment inflows to Southeast Asia, which represents the bulk of this growth along with India.

Indeed, it's not just the overall economy, rather with slowing local government revenues in China and a shrinking but quickly aging population, we have also Chinese public health authorities put pressure on pricing and thus margins by leveraging centralized procurement methods. With the opportunity in China becoming more challenging, struggles persisting throughout Europe with disruptions such as large doctor strikes and budget constraints, and a mature US market, healthcare firms are looking for the next investment opportunities.

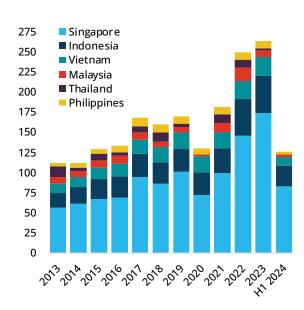
China's contribution to global growth continues to slow

Contributions to global GDP growth, %



Global geopolitical tensions and supply chain risks have led to a major increase in investment, particularly in Singapore, Indonesia, and Vietnam

Foreign direct investment into ASEAN (US\$ billions)



Southeast Asia clearly represents a significant potential, already contributing today to some firms' ability to continue to pace global growth from Asia despite major disruptions in South Korea and the slowdown in China

"Southeast Asia is delivering more than we expected, helping to support the regional business as we see disruptions in other geographies such as South Korea and China." — Medtech Leader

That said, the fragmented nature of the region does present challenges to capture growth in a profitable way. With numerous regulatory regimes, payers, different consumer behaviors in each market and across unique local cultures (even within countries), firms will need to address Southeast Asia in a unique way, looking for ways to gain scale while also adopting their business practices to the reality of the local context.

"We need to present additional reasons to elevate Southeast Asia's relevance at the global level. Specifically focusing on innovation beyond our core product, how can we innovate in the patient experience." — Medtech Leader

Interestingly, these markets have historically been dominated by public healthcare systems, with largely underpenetrated private markets. This is now shifting, as more people seek out private insurance (as we demonstrate later in this white paper). That said, the public payers and provider system still dominate the landscape, and they too are investing but now in novel ways to the past, doubling down on primary care, expanding public-private partnerships to expand capacity in tertiary care, and exploring innovative models to address capacity shortfalls such as hospital in the home, remote patient monitoring, and new reimbursement models to push hospitals to discharge patients more quickly while operating longer hours.

Within this context, healthcare firms have opportunities to participate in the Southeast Asia growth story across the public and private spaces, but these will require unique strategies and accompanying capabilities.

"Indonesia presents a huge opportunity to innovative digitally in healthcare, especially thinking about the AI opportunity and the tech ecosystem that exists locally." — Private Equity Principal

From the largest regional healthcare market, Indonesia, to small but highly developed Singapore, this white paper is aimed at helping global decision makers to better understand how Southeast Asia should fit into their global investment decisions, and more specifically what the unique opportunities are to participate in the expansion of patient access and thus accelerate local and global growth.



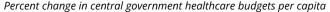
A Public Sector Pushing Hard to Expand Access

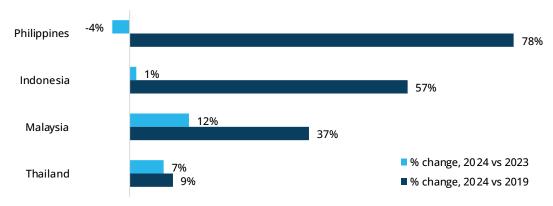
An Overview of Key Public Sector Dynamics

What better place to start than by looking at the region's key public sector dynamics. As the public sector continues to represent 74% of total financing, it has an overweighted impact on what happens in the rest of the system. Meaning, where there are public sector shortfalls, this will likely drive further private sector uptick.

While we highlight here some key facts looking at the evolution of financing in 2024, with Malaysia and Thailand pacing the region at +14% and +7% respectively, this only tells part of the story. Fascinatingly, all markets are seeing per capita financing well above 2019 levels (Philippines: +78%; Indonesia: +57%; Malaysia: +37%; Thailand: +9%) with the increases driven by COVID-related financing not totally clawed back, rather being diverted to other ends.

Thailand is the only country where the per capita budget increased more than the overall healthcare budget due to its population being slightly smaller than before the pandemic





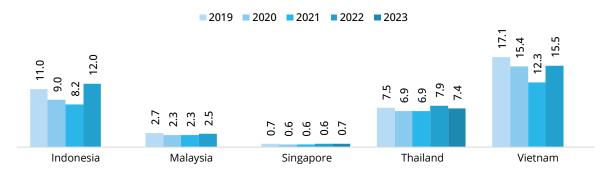
Additionally, during the pandemic years, we saw the key social security funds run meaningful surpluses, as members were not using health insurance for many elective procedures. This resulted in near-term fiscal space for Philippines, Indonesia, and Vietnam to update reimbursement lists. Additionally, in the case of Vietnam, Indonesia, and the Philippines we saw significant efforts by the governments to expand enrollment in social security health programs.

Overall, the last few years have seen positive evolution in financing, and coverage – both from a population as well as reimbursement list / pricing perspective. However, as we look forward we are beginning to see more cracks in the system, with many of these social security payers having begun to run a deficit again in 2023 and out-of-pocket costs on the rise both in absolute terms as well as relatively, as costs are increasing while reimbursement rates have failed to keep up in many cases. Singapore itself, the richest country amongst the top six markets profiled throughout this white paper, has not been immune to this trend, with a declining rate of hospital stays fully covered by public financing, a trend that has led the public authority there to evaluate meaningful new increases to premiums. Meanwhile, almost across the board we are witnessing emerging conversations on the introduction of co-payments, the expansion of co-payments, or the introduction of mixed financing (allowing for patients to cover out-of-pocket costs with supplementary private insurance).

How Patient Throughput Rebounded from the Pandemic

Curiously, a lot of the growing pressure on financing isn't just the inflationary burden born by payers via increased personal and input costs (including energy and food). In fact, across the entire region, except for Vietnam, as of the end of 2023 (the last year for which we have data for most markets), we had seen inpatient visits in public hospitals either rebound to or surpass their pre-pandemic figures (defined as 2019).

Part of Indonesia's increase in patient volumes is due to a large increase in its JKN population Number of inpatient visits, millions



"Patients are returning, but with many more comorbidities, much sicker. Higher rates of diabetes, hypertensions, and other chronic diseases. Much harder to treat." — Nursing Manager at Leading Ho Chi Minh City Public Hospital

This increased throughput, combined with higher pricing for most components of care delivery, sicker patients returning with a higher rate of comorbidities, and expanded reimbursement lists, have combined to lead the social security payers into deficit.

A Renewed Focus on Primary Care

As a result of these overarching trends in population, disease, and financing, public systems across the region are doubling down on primary care in the name of early detection and prevention. Maybe the most famous of the programs is Singapore's HealthierSG program, aimed at enrolling all Singaporeans over a certain age with a primary care physician. That said, not one government among the top six markets has not in some way doubled down on primary care, including demonstrating the priority in budgeting decisions.

Primary Care Efforts

Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Expansion of puskesmas (community health centers) and posyandu (integrated health posts), including expanded list of screenings	Madani Medical Scheme. The Health White Paper states that Malaysia will shift its focus to primary care.	Expansion of Konsulta. Piloting new payment mechanisms for Konsulta providers and expanding benefits.	Big push for Healthier SG, still trying to expand enrollment in the program	Outsourcing care to pharmacies and using telemedicine, but scope of services is limited now	Investment in primary care infrastructure using multilateral funding from the World Bank, etc.

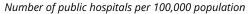
"The increased focus on primary care, in the short-term, will increase the burden on tertiary care as more diagnoses are made. How can we ensure sustainability?" — Pharma Policy Lead

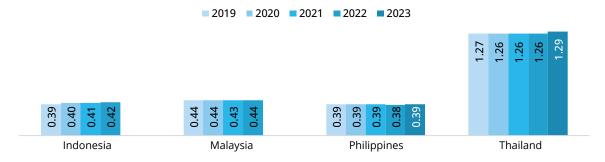
Indeed, this move in some cases has been accelerated by the willingness of multilateral lenders to provide financing options for these governments to invest in specific early detection and prevention programs, with the World Bank and Asian Development Bank having committed over 2.5 billion USD across multiple marquee projects in just Indonesia and the Philippines since 2022. Loans to Indonesia are part of a total 4 billion USD committed to the country for healthcare by the World Bank, Asian Development Bank, Asian Infrastructure Investment Bank, and the Islamic Development Bank.

Growing Role of PPPs to Overcome Capacity Challenges

With the growing demand for public services, pressured public financing, and increasingly limited human resources, we have seen another emerging trend, a limited ability of regional government to meaningful expand public hospital beds along with overall population growth.

Despite health infrastructure being a major focus of the Philippines, it has not meaningfully increased the number of public hospitals in recent years





Consequently, in the past 24 months, we have seen a growing search for cooperation with private providers via PPPs to guarantee access to public patients.

Philippines: President Marcos Jr. is prioritizing more PPPs for health infrastructure, with bidding for the UP-PGH Cancer Center open now

Key Aspects of the University of the Philippines General Hospital (UP-PGH) Cancer Center PPP Project

- First PPP project under Marcos Jr. administration
- 30-year Build-Operate-Transfer (BOT) model, in which private sector entity constructs the hospital, operates it for thirty years, then transfers full ownership to the government
- Ayala Healthcare has expressed intention to bid
- 300-bed hospital (150 charity beds for the UP-PGH Area and 150 private beds for the private area)

Thailand: The MOPH and the EEC Policy Committee are testing a new PPP model for Pluak Daeng 2 Hospital to address funding constraints

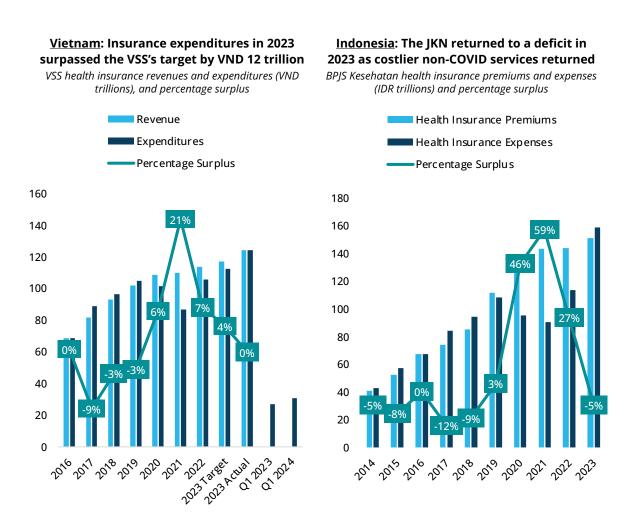
- Government will provide around THB 230 million for construction; private sector will provide around THB 1.8 billion
- Construction will be completed over course of three years and will be done by private sector
- After construction is completed, ownership will be transferred to the government, but the private sector will handle operations
- Government will receive small share of hospital revenues as well as rent payments
- After the 50-year contract period ends, full management is transferred to the government

While a positive development, there have been many hiccups in implementation, including perceived shortfalls in reimbursement rates from private providers, delayed payments, and oftentimes confusion by patients regarding the facilities that they can access and be covered by their social security benefits.

Key Challenges: Projected Budget Deficits and an Intensifying Personnel Crunch

In examining these overarching trends in public sector financing and care delivery, paired with the overall macro and demographic context, it is apparent why there are reasons to be bullish on the sector and region. That said, there are also very specific challenges that firms wanting to participate in this growth story can actively participate in solving.

The first is the gradual deterioration of social security balances, and the clear need to source alternative financing to ensure sustainability in expanding access both in terms of population and quality.

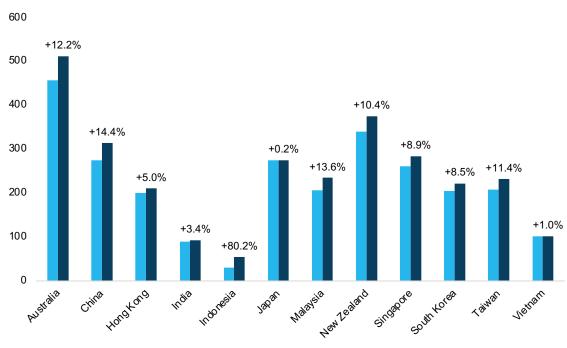


There are clearly several viable solutions, among which are increasing tax intake, external financing, mixed financing, and efficiency gains. That said, for a deeper dive on this topic we would reference interested readers to a recent paper developed by the US ASEAN Business Council.

The other clear challenge, and one that is not necessarily unique to Southeast Asia, is a severe personnel pinch within the healthcare delivery system. Indeed, even where we have seen the fastest growth in per capita doctor numbers (Indonesia), it is the very country that still finds itself dead last in regional ranking and among the lowest in the world.

Most markets experienced an increase in the density of doctors Number of doctors per 100,000 people





Simply stated, this challenge will need to be overcome through a combination of training more healthcare workers domestically, retaining more of those healthcare workers, attracting talent from abroad, broadening the permitted activities of the allied healthcare workforce (including specifically pharmacists, nurses, and physician assistants), and improving overall productivity.

"There are many nurses and doctors that are moving to the private sector to increase their earnings power." — Nursing Manager at Leading Bangkok Public Hospital

"It will be hard for Indonesia to address their physician shortage, as they don't have the large cohort of surgeons living abroad that can come back to build businesses as we have seen in places like India" — Medtech Leader

However, this is a very serious challenge, and in our view represents the defining challenge for the regional healthcare systems to deliver on the promise of health equity.



Booming Private Investment but Capped Reach

An Overview of Key Private Sector Dynamics

Private healthcare in Southeast Asia has historically been predominated by out-of-pocket spending, which today represents 30.4% of total healthcare expenditure on average across Indonesia, Malaysia, the Philippines, Thailand, and Vietnam, with the Thailand on the low end of this spectrum at 9% and the Philippines on the high end of this spectrum at 45%.

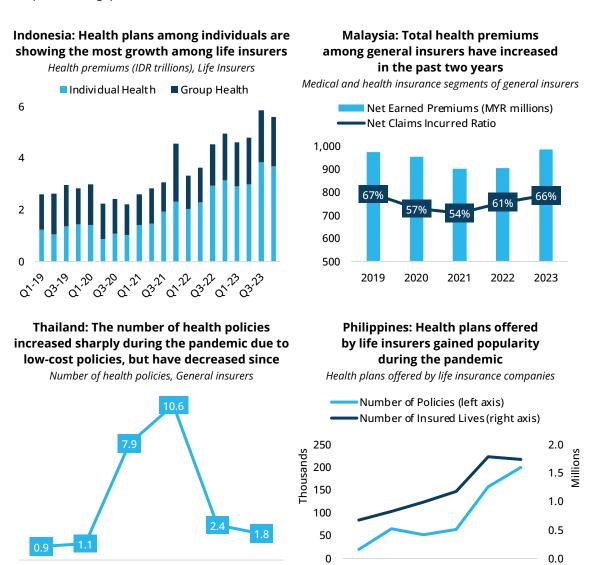
The last few years have seen two major shifts in this story. First, private hospital activity has grown much faster than public hospital activity, with Indonesia and Vietnam seeing around 30% growth in private sector patient throughput between 2019 and 2023, while the other key markets (with the exception being Singapore) seeing between 5% to 20% growth.

A comparative view of ASEAN private providers' key performance metrics

	2023 v. 2019 Patient Throughput	Average Margins (EBITDA)	Capex Trend
Indonesia	+25% to 30%	~25% to 35%	Major private hospital groups continue to increase CAPEX, particularly for construction of new hospitals. Providers are also procuring more advanced capital equipment to enhance their specialty care offerings.
Malaysia	+5% to 10%	~25% to 30%	Hospital groups are selectively pursuing acquisitions to expand, with some hospital groups pursuing a cluster strategy. Providers are spending to acquire high-tech capital equipment, such as surgical robots, to retain their favorable position as medical tourism providers.
Philippines	Outpatient: +10% to 15% Inpatient: -15% to -20%	~10 to 20%	Increasing capital expenditures by major providers to consolidate. CAPEX spending will further increase as foreign capital and new players enter the private sector.
Thailand	+10% to 20%	~20% to 30%	Providers continue constructing hospitals and expanding bed capacity, particularly in medical tourism hotspots. Hospital groups are also spending on health and wellness developments.
Vietnam	+20% to 30%	~10% to 20%	Capital expenditures via acquisitions are increasing in the private sector and are expected to accelerate as foreign capital continues to flow in.

"It is apparent that the growth in the short and medium-term will be private sector driven, which could open new collaboration pathways between supplier and providers." — Pharma Leader

The other key trend has been the growth in private insurance. While the data is imperfect given a lack of organization (a topic that we will discuss in our key challenges section), we have seen growth in premiums and number of lives covered by private insurance across the region (again, with the exception of Singapore).



A major reason to believe that this trend will continue is the coupling of a struggling public sector, that despite best efforts is hard pressed to keep up with growing demand, and rising purchasing power of workers and the formalization of many parts of the economy (which generates employer sponsored private insurance opportunities).

2022 9M 2023

2018

2019

2020

2021

2017 2018 2019 2020 2021 2022

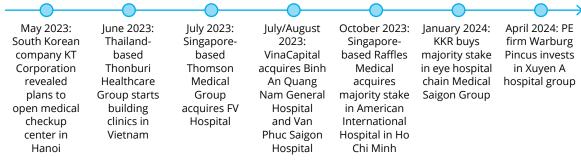
"We expect no slowdown in our business, and the number one reason why is that public systems continue to struggle. We are in fact prioritizing new investments by looking at the weakness of public care delivery systems across subnational governments — Philippines Private Hospital Provider

The Growth of Private Equity in Hospital Investment Across the Region

A third key driver of the growth in privately provided care is the growing interest of private equity. Capital from the United States, Europe, Singapore, China, and other local groups are accelerating the search for investible assets as they recognize the growth potential of the sector. In this case supply generates its own demand, with more investment in health services we are seeing patients increasingly seeking private care, and physicians migrating to private facilities or in many cases moonlighting at private hospitals to augment their public sector incomes.

Vietnam's private sector is increasingly drawing interest from international investors

Notable recent developments regarding investment in Vietnam's private sector



The trend of private equity was sustained even during peak global interest rates, suggesting that as we enter a new monetary easing cycle globally, and growth slows in the United States, it only becomes more likely that we see an acceleration of investment. The number one pinch point will be the number of currently available investable assets, which is likely to drive a large share of future investments into the greenfield category.

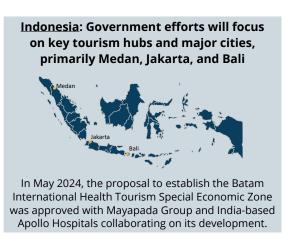
Medical Tourism as a Continued Growth Driver - But with New Dynamics

The fourth driver, and last driver that we will discuss here, of an accelerating private sector growth story is the rebound in medical tourism.

"We intend to capture a meaningful share of the medical tourism market, which means that we will need to incentivize more investment in high quality medical equipment." — Vietnam Public Healthcare Official

<u>Vietnam</u>: Ho Chi Minh City (HCMC) is making a push to become the medical tourism hub of Vietnam

- Travel businesses in HCMC are partnering with medical establishments to create over 30 medical tourism packages by end of 2023
- The HCMC Department of Tourism is collaborating with more than 50 establishments, including hospitals, medical facilities, spas, travel agencies, and accommodation providers, on a promotion and marketing campaign
- The HCMC Department of Tourism plans to include medical tourism in its upcoming strategy for tourism development in HCMC



The key difference now compared to prior to the pandemic are three-fold. First, we are seeing new players, specifically Vietnam and Indonesia vie for a slice of the medical tourism pie via strategic investment. Second, we have seen a stronger Singaporean Dollar dampen medical tourism demand for basic consultations from countries such as Indonesia, and finally we are seeing a greater diversification of arrivals, with more arrivals from a greater basket of countries in the middle east as well as Europe.

Challenge: Underdeveloped Private Insurance Products and Regulations paired with Higher for Longer Cost of Capital for Hospital Groups

While the key trends driving the accelerated growth in the private healthcare sector are largely here to stay, there are underlying fundamental challenges which could erode this story over time if not acted against both by government as well as the private sector.

First is the maturity of the private insurance system. Regulation of private insurance, and oversight perhaps more importantly, has been unable to keep up with the rapid boom. Across Southeast Asia there are not explicit requirements for what private insurance must reimburse, controls around copayment and deductibles, or limits on profitability, all of which are quite normal in mature private insurance markets such as the United States, Brazil, and Australia.

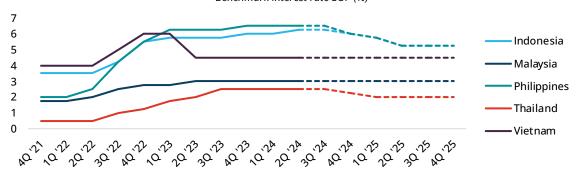
"There is an opportunity and need to collaborate more closely with private health insurers to discuss optimizing reimbursement packages, and managing relationships with hospitals specifically focused on the financial incentives to investment in quality and innovation." — Medtech Executive

Second is access to capital for further expansion and diversification. Despite the arrival of private equity, higher interest rates are increasingly putting pressure on hospitals to further invest in capital equipment to keep up with growing demand.

"We are seeing a meaningful increase in the number of hospitals coming to us and asking for leasing options for equipment that they previously would have purchased outright" — Medtech Executive

While the previous model was based around cash, it is becoming increasingly necessary for suppliers to offer alternative business models to facilitate the expansion of providers within their existing specialties or into new areas of care. As we expect global interest rates to remain relatively elevated across all of 2025 and into 2026 (though gradually on the decline), this pressure is here to stay.

Indonesia, Thailand, and the Philippines are primed to cut rates, albeit not drastically Benchmark interest rate EOP (%)



The Evolving Regulatory and Policy Landscape: What it Means for Investors

An Overview of Key Regulatory and Policy Developments

Southeast Asia's regulatory environment has historically been challenging for healthcare firms to navigate, with timelines for product approvals lagging behind most other countries in Asia. Additionally, the diversity of markets results in an array of country-specific regulatory requirements, hindering firms' abilities to efficiently bring products to market.

However, we see concerted efforts by regulatory agencies in just the past year to improve marketing authorization timelines. Malaysia and the Philippines have introduced changes to speed up approval timelines for drugs, expand eligibility to additional types of drugs, and increase reliance on regulatory agencies in other countries. Similarly, Thailand has significantly reduced authorization timelines by removing administrative burden and relying more on reference regulatory agencies. This comes amidst an acceleration of efforts by several regulatory bodies in the region to expand usage of the ASEAN Joint Assessment pathway, which allows a simultaneous submission of a single marketing authorization application to multiple agencies in Southeast Asia, which has the promise of reducing duplicity and fragmentation in brining products to market in the region.

Recent market access and reimbursement developments in ASEAN

	Market Access	Reimbursement	Pricing	Procurement
Indonesia	New post-market in-country testing requirements as of September 2023	JKN ran a deficit of -5% in 2023 after several years of surpluses, limiting reimbursement increases and coverage expansion	Health Omnibus Law gives the government authority to regulate prices of medical devices	Health Omnibus Law states that the private sector should favor local products
Malaysia	Implementing faster drug approval pathways with shorter timelines and more reference agencies.	In June, the MOH announced its proposal on health financing will be released soon	The MOH is considering implementing drug pricing transparency	Considering expanding medical equipment leasing and centralizing medicine procurement with university and military hospitals
Philippines	Expanded the eligibility of expedited approvals to generics, and added to its list of reference regulatory agencies	30% increase in PhilHealth case rates; Mammogram and ultrasound screenings and more drugs added to Konsulta package	Price Reference Index will accompany Philippine Essential Medical Devices List	New Procurement Act, expected to be signed into law by Marcos Jr. soon, aims to increase preference for local products
Singapore	The HSA has launched an Initiative to streamline registration of new medical devices using data from previously registered ones	The MoH is looking to significantly expand reimbursement via MediShield Life to ensure 9 to 10 hospital visits are covered	MediShield Life's focus on hospital care and concerns about private insurance suggest policymakers are unhappy with rising costs	Singapore's focus on Medtech manufacturing and growing ESG considerations may influence procurement decisions, albeit indirectly.
Thailand	Announced a 58% reduction in approval timelines in 2024 by streamlining administrative processes	THB 60 million budget for robotic surgeries on cancer patients through end of FY 2024	The median price policy will continue in the 2023–2027 National Drug System Development Plan	Hospitals are pushing for leasing models, but are constrained by lack of visibility on OPEX budgets for future years
Vietnam	Extension of import licenses as MOH continues to deal with a backlog of registration applications	Law on Health Insurance amendments propose expanded coverage of screenings, with expected passage in 2024	Relaxed price declaration requirements	The government issues circulars and guidelines to clarify which drugs and devices are subject to centralized procurement and price negotiation

Localization Pressures Persist and Continue to Evolve

Coming out of the pandemic, during which we saw considerable supply chain disruptions lead to major shortages of essential drugs and supplies, every government in the region has made it a priority to increase self-sufficiency in local products.

Generally, most markets have opted to dole out "carrots" to incentivize greater local production, with Thailand and the Philippines introducing various tax and non-tax incentives in the last few years, and Malaysia creating a sweeping industrial plan, the National Industrial Master Plan 2030, to boost local production, including in pharma and medical devices, two of its five priority sectors.

On the other hand, Indonesia's approach has diverged from its peers, with the government instituting local content requirements in procurement, removing imported products from its online procurement system e-Catalogue, and leveraging its new Health Omnibus Act to open the door for further aggressive localization measures.

The Philippines is also on the cusp of passing a new Procurement Act, in which it plans to strengthen the preference for local suppliers, which is a move that increasingly more governments could take as a cost-containment measure in the face of budget constraints discussed earlier.

Indonesia has opted for the "stick" approach to drive local production, while others in the region have taken more of a "carrot" approach

Localization dynamics across ASEAN

	Indonesia	Malaysia	Philippines	Thailand	Vietnam
Focus Sector	Pharma and MedTech	Pharma	Pharma	Pharma and MedTech	Pharma
Time Horizon	Short term	Medium term	Long term	Medium term	Long term
Intensity of Pressure*	High	Low	Medium	Low	Low
Development to Watch	New measures to increase pharma and medtech self-sufficiency resulting from the Health Omnibus Act passage Emphasis on localization from new government after February 2024 election	New Industrial Master Plan (NIMP) 2030 incentives and implementation	Launch of Pharma-Dev EcoZones	Board of Investment incentives (and whether the new government opts to take the same approach or another route)	Potential release of new incentives for local production Creation of new bio- pharmaceutical industrial parks

^{*}in relation to regional peers

The Philippines Procurement Act's changes include strengthening the preference for local suppliers

Key changes related to drug procurement in the new Procurement Act

	Republic Act No. 9184	New Procurement Act
Timeline from opening of bid to award of contract	90 days	60 days
Domestic preference in procurement	Procuring entity may grant a margin of preference of up to 15% to domestic entities when competing with foreign bidders	The procurement entity shall award to the domestic bidder if the bid is not more than 25% higher than the lowest foreign bid
Negotiated procurement	Limited to certain cases	Expanded to cases of highly-specialized life-saving medical and biotech equipment and devices, medicine, supplies, materials, tools and consumables, as certified by the DOH
Quality vs price	Emphasis on lowest price	Introduction of the Most Economically Advantageous Responsive Bid and the Most Economically Advantageous Bid, which allow quality to be factored in

Challenge: Localization pressures persist, while implementation of accelerated marketing authorization pathways falls short of big promises

While recent efforts to expedite marketing authorizations is positive, implementation of these efforts will be key, as many agencies face resource constraints and political situations that could divert resources and attention.

"We are happy with the Philippines FDA expanding eligibility for expedited approval pathways earlier this year, and believe they can execute on the timelines based on past changes. However, the requirement for the product to be approved by a reference regulatory agency within the last three years is too restrictive and excludes older products in our portfolio." — Pharma Leader

Regarding localization, despite various actions taken by governments, no country in Southeast Asia has experienced a wave of manufacturing investment when it comes to pharmaceuticals and medical devices. While this means that more innovative products will likely not be forced to comply in the short term, it also means that it will continue to be a focus for the government, raising the possibility that governments consider different approaches to drive localization. At the same time, entry by Chinese firms looking to expand production outside of China and avoid tariffs on Chinese products could take place, which would accelerate localization pressures on global healthcare companies. The persistence of elevated pressures means that global healthcare companies will face tough decisions regarding localization in Southeast Asia, including ways to pursue "alternative localization paths" through other investments that build local capacity and deepen relationships.

"From a localization perspective, the countries in Southeast Asia don't have the scale to justify major investments. We will continue to localize in China, and are increasingly asking ourselves about India, but making the case for Southeast Asia for Southeast Asia is a hard one"

How Global Companies Can Invest to Accelerate Access in Southeast Asia

Action Area I: Addressing the Personnel Shortfall

Across the globe, our team sees the personnel shortfall as the number one issue facing most healthcare systems. Even where countries are being able to increase numbers of doctors, nurses and allied health workers relative to the overall population, in many instances they are still seeing wage bills surge above revenue growth, creating unsustainability in terms of provider and payer finances.

For Southeast Asia, this problem is accentuated by the continued outward migration of healthcare professionals to many developed markets where they might be able to improve their earnings power.

Here we propose a set of solutions that the global healthcare companies can support local providers and payers to implement to face this defining challenge.

Strengthening of the Allied Healthcare Workforce and the Investment in Transferable Skills:

While increasing the number of doctors and nurses is expensive, time consuming (e.g. even if you expand places in medical schools today it will be years before you see a payoff), and often polemical, there are a number of short-term wins that can be achieved by getting more out of the allied healthcare workforce.

"We have embraced the concept that nurses will stay for 2 years and then move to a developed market to earn more. We are positioning ourselves as a teaching hospital for nurses." — Philippines Hospital Executive

Key examples include allowing nurses and physician assistants to conduct low risk procedures independently in addition to permitting pharmacists to deliver vaccines and prescribe some medications. For instance, Thailand has started allowing treatment for certain minor illnesses at pharmacies, to reduce congestion at public hospitals and speed up medicine dispensing.

"There are a lot of challenges in addressing the personnel problem by expanding operational scope of non-physician personnel. One of which is that many people still want to see their doctor, right or wrong they don't necessarily trust a pharmacist to deliver a vaccine or provide other basic services" — Pharma Executive

However, of course there is often push back on such changes as well from different stakeholder that understandingly worry about quality, but we believe that through proper regulation, training, and support from the private sector, these changes can be implemented in a way to effectively improve collective outcomes while reducing costs.

Decentralization of Care via Hospital in the Home Programs, Telehealth, Remote Monitoring, and Software as a Medical Device:

Care decentralization is our second big action item, which can help alleviate two issues. First, it can lower the burden on existing healthcare professionals by increasing productivity. Second, it can reduce

the need to expand hospital capacity to lower wait times by keeping more people at home (and thus in theory should also reduce the burden of challenges such as hospital-acquired infections).

"Investments in home care are meaningful but will take time to get to scale. Most countries are seeing it as an opportunity to alleviate pressure on overworked healthcare personnel." — Thailand Based Hospital Investor

Greater responsibility for non-physician healthcare personnel

Australia: Legislation is proposed to expand the remit of nurse practitioners

Japan: Expanded scope of practice for nurses, pharmacists; more team-based care

Korea: Revised regulations to expand responsibilities of nurses, esp. with the doctors' strike

Thailand: Outsourced care for 16 minor illnesses to pharmacists **China:** Expanded support for community elderly care services



Prioritization of primary care

Australia: Increased funding for bulk billing

Japan: Ongoing expansion of community-based care **Korea:** Financial support for pediatrics and OBGYN

India: Expand Arogya Mandirs

Indonesia: Expanded screenings at primary care level

Philippines: Expanded benefits and higher capitation rate for Konsulta package **China:** Stronger medical alliance between tertiary hospitals and primary institutions

Singapore: Continued roll out of Healthier SG



Continued support for telehealth access

Australia: Launched new telehealth guidelines in September 2023 **Japan:** Increased funding for digital transformation in healthcare

Korea: Proposed legislation to legalize telehealth; expanded telehealth services in scopes

and in facilities due to doctors' strike

Thailand: Launched telemedicine pilot project in six provinces **Vietnam:** Made 50 diseases and conditions eligible for remote care



Prioritized investment in rural hospitals

Australia: Increased focus on equity of access in HTA decisions

Japan: The 8th Medical Care Act requires prefectures to develop policies to promote rural care

Korea: Essential Care Policy dedicates funding to increase resources in rural areas

Malaysia: 2024 budget includes boost in CAPEX spending for hospitals, including in rural areas

Philippines: Build specialty centers across the country

China: Increased subsidy and reimbursement for county-level hospitals



Push toward non-hospital care delivery

Australia: Growing push for hospital in home and out-patient care delivery **Japan:** Growing push for care to happen in clinics and outpatient settings

Korea: Establish regional care delivery system to move away from the "Big 5" Hospitals

Thailand: Piloting Home Ward project

Singapore: First-time reimbursement for hospital at the home as of April 2024



Indeed, Southeast Asian countries are taking a number of actions on this front and can also adopt emerging practices from its other Asian neighbors.

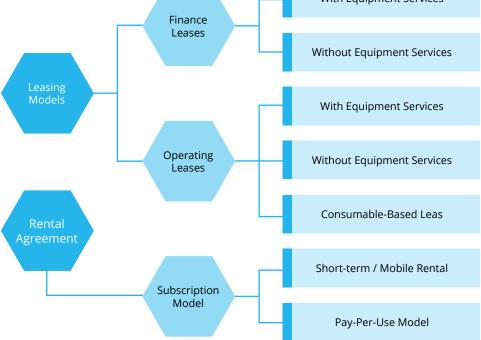
Overcoming Capital Constraints by Developing Innovative Business Models:

Once we have maximized options for increasing the capacity of our current healthcare workforce, and reducing the burden on hospitals through care decentralization, that leaves us with a need to accelerate investments in physical infrastructure to attend to the demand that the first two interventions could not alleviate.

Asia lags most of the rest of the world in terms of the sophistication of relationships between suppliers and care providers, meaning there remains a lot of space for value creation and differentiation. First, there is a lot of room for expanded operating expenditure (Opex) models to facilitate the adoption of high-cost capital equipment needed to expand access. The options on this front are largely known, but require investments in accounting and finance, and complex discussions with customers to enact.

With Equipment Services Finance Leases

There are a key set of core models that companies can pursue Key OPEX Models for Healthcare Capital Equipment



"We still don't provide a lot of value-added services that are provided in other regions of the world, such as Opex models, operating room management, stock management, and other operational management. There is a large opportunity to provide additional value here, but relationships would need to fundamentally change. This is where we hope PPPs can open new opportunities." — Medtech Leader

Action Area II: Supporting the Push for Prevention and Early Detection Supercharging Screening Programs through Protocol Development, Capacity, and Awareness:

With most regional government diverting attention to primary care, there are tremendous opportunities to engage in policy design and execution, specifically when it comes to screening programs. We have seen several new screenings be included in local reimbursement, but capacity is still not in place to execute at levels suggested by the WHO, and awareness amongst the populations at this early of a stage in the programs will be low.

Likewise, as the governments continue to expand these programs, firms are well positioned to support in the development of appropriate clinical guidelines.

Philippines: PhilHealth recently announced an increase in the Konsulta capitation amount

Recent announcements from PhilHealth regarding the Konsulta package

- Capitation rate will be increased to PHP 1,700 per patient
- Private Konsulta providers can charge a copayment of up to PHP 900
- Added mammogram and ultrasound screenings to Konsulta package
- Disbursed PHP 257 million in February to primary care provider networks under new pilot program

Indonesia: The government provides 14 free screenings at puskesmas (community health centers)

List of free screenings provided at puskesmas

- Diabetes
- Hypertension
- Stroke
- Heart disorders
- Cervical cancer
- Breast cancer
- Tuberculosis
- Anemia

- Lung cancer
- Colorectal cancer
- Chronic obstructive pulmonary disease
- Thalassemia
- Congenital hypothyroidism
- Hepatitis

Expanding the Capacity to Deliver Vaccinations:

In addition to early detection, we see most regional governments returning their attention to expanding prevention programs through expanded vaccination investment. Much of the challenge will still be to deliver these vaccinations, requiring mobile units and broader capacity amongst the allied healthcare workforce to deliver vaccines (in addition to confidence amongst populations in vaccination).

Vietnam: The MOH announced plans to add four more vaccines to the national childhood immunization program

Vaccines to be added to the national Expanded Program on Immunization (EPI)

2023	2025	2026	2030	***************************************
Rotavirus vaccine	Pneumococcal vaccine	Cervical cancer vaccine	Seasonal flu vaccine	16 vaccines in national immunization program

Strengthening Health Literacy

Finally, as government tackle the challenge of broadening access to primary care, global healthcare firms have an opportunity to participate in building basic health literacy to support uptake and adherence to prevention and lifestyle adaptations that will ultimately reduce the burden of both chronic and infectious diseases and allow public systems to reinvest in high value technology.

Action Area III: Bringing AI Application to Tackle Unique Local Problems and Enhance Efficiency

Finally, as investment and regulators quickly shift their investment dollars and attention to the application of AI in healthcare, global healthcare firms have a big opportunity to leverage new models to tackle previously intractable bottlenecks across Southeast Asia's healthcare sectors.

	Functio		Challenges potentially addressable by AI
(A	0	Compliance	Companies struggle with compliance to ever-changing regulations across different geographies, which is costly and time-consuming, with high penalties for non-compliance.
Operations	2	Supply Chain	Companies face challenges in optimizing their supply chains due to various factors such as shortages, transport delays, and traditional management issues.
O	3	HR	Companies struggle in finding the right candidate profile, managing slow hiring processes, and mitigating potential bias in the selection process.
eneration	4	Marketing	Companies grapple with managing and optimizing marketing content across diverse platforms, regions, and languages.
	5	Commercial	Commercial teams struggle with identifying high-value leads amid vast data and having to perform manual outreach to prospects.
Revenue-Generation	6	Medical Affairs	Because of manual, time-consuming processes, companies struggle to stay updated with the vast and evolving medical literature, while ensuring the accuracy of medical content and monitoring adverse events.
_	7	Market Access	Companies face challenges in generating necessary documents for marketing authorization and reimbursement, translating global trial benefits to local value contexts, and accessing local real-world evidence, resulting in increased costs and delays in obtaining approvals.

The Role for AI in Supply Chain Management:

Given AI presents inherent risk when it comes to items such as data privacy, compliance, and liability for when the models are wrong, it's likely that most companies will focus in the early stages on internal issues. When they do turn their attention to external issues, it will be safer to focus on non-clinical challenges.

"Ideally we focus first on internally productivity, as there is still a lot of risk becoming involved on the clinical side with AI" — Medtech Leader

81% of Southeast Asia Healthcare leaders surveyed said they would focus on supply chain management with their first regional investments with AI

Leveraging AI to Support Competency Building:

Firms must also think about how they can redirect AI to address the single largest challenge facing regional healthcare systems, the personnel gap. Global healthcare companies already spend significant percentages of their operating budgets on training and capacity building for key healthcare personnel, leveraging AI tools to boost productivity on this front to tackle unique local challenges that would support patient access while limiting the need to drastically increase associated costs and price to the payer.

"Much of our costs come from training and supporting surgeons in ensuring proper use of our technology. This then needs to be passed on in price. If we can drive efficiencies in this area, that is a win for everybody." — Medtech Leader

Developing AI regulation and reimbursement pathways:

While elsewhere in Asia (specifically Japan and South Korea), we are already seeing governments advance on specific pathways to reimburse AI supported medical devices, the overall regulatory and reimbursement environment is lagging in Southeast Asia. Global firms should support their policy and public affairs teams to engage in conversation with appropriate stakeholders to push forward these conversations while beginning to partner with the local tech ecosystem to design focused solutions for local problems inhibiting patient access.

Market	Formal Al Legislation?	Status of Al legislation	Special Approval Pathways for Al Medical Devices?
Thailand	X	The Electronic Transactions Development Agency is gathering opinions which it will use to create the Draft Act on the Promotion and Support of Artificial Intelligence Innovation in Thailand	While there is no expedited pathway, the Thai FDA has released guidelines specifically for devices with Al/Machine Learning
Malaysia	X	Lawmakers plan to release an Al code of ethics and governance within 2024, which it says is a first step to more formal Al legislation.	X
Vietnam	X	The Ministry of Science and Technology and the Ministry of Information and Communications are leading efforts to build legal documents and regulations for AI.	X
Indonesia	X	The Ministry of Communication and Information Technology released ethical use guidelines in December 2023.	Х
Philippines	X	Several House Bills have been introduced to promote and regulate Al	Х



Southeast Asia's healthcare markets' time has come, consequently firms have no choice but to elevate the discussion of what and where to invest in the region's healthcare growth story. The region is set to be an increasingly critical component of top-line and bottom-line growth performance for global healthcare firms over the next decades, especially as China's economy continues to slow and the healthcare system faces myriad challenges. It is clear, that the growth potential outweighs the evolving risks.

To succeed, it will be imperative for firms to invest in helping to overcome patient access barriers through various channels, while allowing for regional and local teams to localize operations and integrated solutions to the extent possible, at the same time ensuring quality and compliance integrity to ensure sustainable access.

While Southeast Asia presents a large value story for global investors, global firms can also deliver outsized value to the local healthcare systems as they look to take the next step in public health and clinical solutions delivery, presenting a win-win opportunity that present very large potential payoffs for all parties.

References

Ahpra. Registration Data. Accessed June 3, 2024. https://www.medicalboard.gov.au/News/Statistics.aspx

Andi Firdaus, Rahmad Nasution. October 12, 2022. "Rp30 trillion allocated for devices for catastrophic disease patients." Accessed June 3, 2024. https://en.antaranews.com/news/254429/rp30-trillion-allocated-for-devices-for-catastrophic-disease-patients. ANTARA News.

Anurag Agrawal, Yishu Pi. May 4, 2023. "Medical tourism: Turning the tide for Indonesian patients." Accessed June 3, 2024. https://www.thejakartapost.com/paper/2023/05/04/medical-tourism-turning-the-tide-for-indonesian-patients.html. Jakarta Post.

Asian Development Bank. Indonesia: Supporting Essential Health Actions and Transformation Program project. Accessed June 3, 2024. https://www.adb.org/projects/54224-001/main#:~:text=%24350%20 Million%20ADB%20Loan%20to,climate%2Dresponsive%20primary%20 care%20services

Asian Development Bank. December 13, 2023. "ADB to Support Upgrading Indonesia's Healthcare Facilities and Laboratories with \$650 Million Loan." Accessed June 3, 2024. https://www.adb.org/news/adb-support-upgrading-indonesia-healthcare-facilities-and-laboratories-650-million-loan

Asian Development Bank. December 6, 2023. "\$450 Million ADB Loan to Boost Philippines' Universal Health Care Program." Accessed June 3, 2024. https://www.adb.org/news/450-million-adb-loan-boost-philippines-universal-health-care-program#:~:text=MANILA%2C%20 PHILIPPINES%20(6%20December%202023,coverage%2C%20and%20 increase%20financing%20for

Asosiasi Asuransi Jiwa Indonesia. Konferensi Pers Kinerja Industri Asuransi Jiwa. Accessed June 3, 2024. https://www.aaji.or.id/RuangMedia/

Astrid H Kenzu, Rahmad Nasution. April 16, 2023. "Local health centers offering free screening for 14 diseases." Accessed June 3, 2024. https://en.antaranews.com/news/278865/local-health-centers-offering-free-screening-for-14-diseases. ANTARA News.

Australia Department of Health and Aged Care. February 6, 2024. "Increases to Bulk Billing Incentive Payments." Accessed June 3, 2024. https://www.health.gov.au/our-work/increases-to-bulk-billing-incentive-payments

Australia Department of Health and Aged Care. "Health Technology Assessment Policy and Methods Review." Accessed June 3, 2024. https://www.health.gov.au/our-work/hta-review

Australia Department of Health and Aged Care. August 17, 2021. "Hospital in the Home (HITH)." Accessed June 3, 2024. https://www.health.nsw.gov.au/Performance/Pages/hith.aspx#:~:text=NSW%20HITH%20 Guideline,%2C%20geography%2C%20culture%20or%20gender.

Ayala Corporation. Analyst Briefings. https://ayala.com/investor-relations/presentations/

Bangkok Chain. Opportunity Day and Analyst Meeting Presentations. https://www.bangkokchainhospital.com/en/investor-relations/document/presentations

Bangkok Dusit Medical Services. Analyst Presentations. https://investor.bdms.co.th/en/downloads/presentations-and-webcasts

Bangkok Post. February 21, 2024. "B37bn budget for 62,000 new medics." Accessed June 3, 2024. https://www.bangkokpost.com/

thailand/general/2745531/b37bn-budget-for-62-000-new-medics

BPJS Kesehatan. Laporan Pengelolaan Program dan Keuangan BPJS Kesehatan Tahun. Accessed June 3, 2024. https://bpjs-kesehatan. go.id/#/informasi-publik-diumumkan-secara-berkala?tab=laporan-keuangan

Charmain Roson. June 30, 2021. "Philippines announces new PEMDL Essential Medical Device List." Accessed June 3, 2024. https://asiaactual.com/blog/philippines-announces-new-essential-medical-device-list/. Asia Actual.

China National Health Commission. December 6, 2021. 2020中国 卫生健康统计年鉴. Accessed June 3, 2024. http://www.nhc.gov.cn/mohwsbwstjxxzx/tjtjnj/202112/dcd39654d66c4e6abf4d7b1389becd01. shtml

China National Health Commission. May 17, 2023. 2022中国卫生健康统计年鉴. Accessed June 3, 2024. http://www.nhc.gov.cn/mohwsbwstjxxzx/tjtjnj/202305/6ef68aac6bd14c1eb9375e01a0faa1fb. shtml

Chularat Hospital Group. Opportunity Day Presentations and Results Briefings. https://investor.chularat.com/en/downloads/presentations-webcast

Code Blue. October 3, 2023. "Naccol Meeting Backs Drug Pricing Transparency With Price Displays: PM." Accessed June 3, 2024. https://codeblue.galencentre.org/2023/10/naccol-meeting-backs-drug-pricing-transparency-with-price-displays-pm/

Department of Statistics Singapore. Hospital Admissions, Public Sector Outpatient Attendances And Day Surgeries. Accessed June 3, 2024. https://tablebuilder.singstat.gov.sg/table/TS/M870341

Dexter Cabalza. February 19, 2024. "PhilHealth pays P257M to primary care providers." Accessed June 3, 2024. https://newsinfo.inquirer.net/1906269/philhealth-pays-p257m-to-primary-care-providers. Inquirer.net.

E-gov data portal. 医療関係従事者数. Accessed June 3, 2024. https://data.e-gov.go.jp/data/dataset/mhlw_20210301_0018/resource/fd2d41d7-e5ce-434b-ab59-a6dea61e577c

Electronic Transactions Development Agency. July 18, 2023. Accessed June 3, 2024. https://law.go.th/listeningDetail?survey_id=MiM4MkRHOV9MOVdfRIJPTIRFTkO=

Free Malaysia Today. September 11, 2023. "APHM lauds move to ease requirements on hiring foreign nurses." Accessed June 3, 2024. https://www.freemalaysiatoday.com/category/nation/2023/09/11/aphm-lauds-move-to-ease-requirements-on-hiring-foreign-nurses/

FrontierView. Data Explorer. 2024. Accessed June 3, 2024. https://frontierview.com/#dx

Herbert Smith Freehills. February 12, 2024. "Ethical guidelines on use of artificial intelligence (AI) in Indonesia." Accessed June 3, 2024. https://www.herbertsmithfreehills.com/notes/tmt/2024-02/ethical-guidelines-on-use-of-artificial-intelligence-ai-in-indonesia

Hfocus. January 16, 2023. Accessed June 3, 2024. https://www.hfocus.org/content/2023/01/26803

HIRA. Accessed on June 3, 2024. https://opendata.hira.or.kr/op/opc/olapHumanResourceStatInfoTab3.do

Hoa học trò. April 12, 2023. "Thông tuyến khám chữa bệnh Bảo hiểm Y tế khiến y tế cơ sở dần "mất khách." https://hoahoctro.tienphong. vn/thong-tuyen-kham-chua-benh-bao-hiem-y-te-khien-y-te-co-so-dan-mat-khach-post1592433.tpo. Accessed June 3, 2024.

Hoang Ha. June 10, 2024. "Heath ministry to add four more vaccines to Expanded Immunization Program." Accessed June 3, 2024. https://en.baochinhphu.vn/heath-ministry-to-add-four-more-vaccines-to-expanded-immunization-program-111240610170245145. htm#:~:text=VGP%20%2D%2DFour%20more%20vaccines%20 will,Ministry%20of%20Health%20(MoH).&text=These%20vaccines%20 are%20Rotavirus%20vaccine,vaccine%20and%20seasonal%20 influenza%20vaccine. Socialist Republic of Viet Nam Government News

Hong Kong Department of Health. 醫療衞生服務人力統計調查. Accessed June 3, 2024. https://www.dh.gov.hk/tc_chi/statistics/statistics_hms/statistics_hms_find.html

HSA Singapore. June 13, 2024. NextGen MD Initiative. Accessed June 19, 2024. https://www.hsa.gov.sg/docs/default-source/hprg-mdb/regulatory-updates/nextgen-md-initiative.pdf?sfvrsn=a52af86b_1

Ilham Hidayattulah. October 11, 2023. "Indonesia to Require Post-Market In-Country Testing of Medical Devices." Accessed June 3, 2024. https://asiaactual.com/blog/indonesia-to-require-in-country-medical-device-product-testing/#:~:text=Indonesia's%20Ministry%20of%20 Health%20announced,are%20rewards%20for%20doing%20so. Asia Actual.

IHH Healthcare. Quarterly Reports. https://www.ihhhealthcare.com/investors/reports-presentation/reports-and-presentations

Indonesia Central Government. August 8, 2023. Undang-undang (UU) Nomor 17 Tahun 2023. Accessed June 3, 2024. https://peraturan.bpk.go.id/Details/258028/uu-no-17-tahun-2023

Indonesia Ministry of Health. December 18, 2023. Indonesia Health Profile 2022. Accessed June 3, 2024. https://kemkes.go.id/eng/indonesia-health-profile-2022

Indonesia Ministry of Finance. UU APBN dan Nota Keuangan. Accessed June 3, 2024. https://www.kemenkeu.go.id/informasi-publik/keuangannegara/uu-apbn-dan-nota-keuangan

Insurance Services Malaysia (ISM). ISM Statistical Yearbook. Accessed June 3, 2024. https://www.ism.net.my/ism-statistical-yearbook/

ISRA News Agency. June 10, 2024. Accessed June 18, 2024. https://www.isranews.org/article/isranews-news/129212-isra-156.html

Jakarta Post. June 4, 2024. "Mayapada Healthcare to Build International Hospital in Batam SEZ." Accessed June 5, 2024. https://www.thejakartapost.com/front-row/2024/06/04/mayapada-healthcare-to-build-international-hospital-in-batam-sez.html

Ji-Eun Jeong. June 3, 2023. "KT to open medical checkup center in Hanoi, Vietnam." Accessed June 3, 2024. https://www.kedglobal.com/tech,-media-telecom/newsView/ked202305150005. Korea Economic Daily.

KPJ Healthcare. Performance Review & Prospect. https://kpj.listedcompany.com/financials.html

Lamonphet Apisitniran. June 10, 2023. "THG invests in Vietnam clinic." Accessed June 3, 2024. https://www.bangkokpost.com/business/general/2588951/thg-invests-in-vietnam-clinic. Bangkok Post.

Louella Desiderio. November 18, 2023. "World Bank lends \$500 million for Philippines climate resilience projects." Accessed June 3, 2024.

https://www.philstar.com/business/2023/11/18/2312259/world-bank-lends-500-million-philippines-climate-resilience-projects. PhilStar

Ma. Teresa Montemayor. March 14, 2024. "PhilHealth approves higher capitation rate for Konsulta packages." Accessed June 3, 2024. https://www.pna.gov.ph/articles/1220804. Philippine News Agency.

Malaysia Ministry of Finance. 2024. "Kementarian Kesihatan." Estimated Federal Expenditure Booklet. Accessed June 3, 2024. https://belanjawan.mof.gov.my/en/expenditure

Malaysia Ministry of Health. Health Facts. Accessed June 3, 2024. https://www.moh.gov.my/index.php/pages/view/58?mid=19

Malaysia Ministry of Health. 2023. Health White Paper. Accessed June 3, 2024. https://www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/Kertas%20Putih%20Kesihatan/Kertas_Putih_Kesihatan_(ENG)_compressed.pdf

Malaysia National Pharmaceutical Regulatory Agency. November 16, 2023. Direktif Berkenaan Pengemaskinian dan Pelaksanaan Guideline for Facilitated Registration Pathway (FRP), Revision 1, 2023. Accessed June 3, 2024. https://npra.gov.my/index.php/en/directive-general/1527544-direktif-berkenaan-pengemaskinian-dan-pelaksanaan-guideline-for-facilitated-registration-pathway-frp-revision-1-2023.html

Medical Board Ahpra. May 31, 2023. "Revised telehealth guidelines raise standards, protect patients." Accessed June 3, 2024. https://www.medicalboard.gov.au/News/2023-05-31-Revised-telehealth-guidelines.aspx#:~:text=The%20guidelines%20allow%20a%20patient,they%20have%20a%20telehealth%20appointment

Metro Healthcare. Annual Reports. https://www.metrohealthcareindonesia.co.id/investor_relations

Metro Pacific Investments Corporation. Annual Reports. https://www.mpic.com.ph/investor-relations/annual-report/

Michael Beltran. July 10, 2023. "Philippines to hire unlicensed nurses as shortages bite." Accessed June 3, 2024. https://asia.nikkei.com/Business/Health-Care/Philippines-to-hire-unlicensed-nurses-as-shortages-bite#:~:text=The%20Philippines'%20Department%20of%20Health,be%20eligible%20for%20temporary%20licenses. PhilStar.

Ministry of Health and Welfare. February 2, 2024. "A Policy Package to Bring Essential Healthcare Back from the Brink of Collapse." Accessed June 3, 2024. https://www.mohw.go.kr/board.es?mid=a20401000000&bid=0032&list_no=1480151&act=view

Ministry of Science and Technology. January 16, 2021. Decision No. 127/QD-TTg 2021 the national strategy for artificial intelligence research through 2030. Accessed June 3, 2024. https://english. luatvietnam.vn/decision-no-127-qd-ttg-dated-january-26-2021-of-the-prime-minister-on-the-promulgation-of-the-national-strategy-on-research-development-and-applica-197755-doc1.html

Ministry of Science and Technology. June 18, 2024. "Bộ KH&CN hướng dẫn nguyên tắc nghiên cứu, phát triển trí tuệ nhân tạo có trách nhiệm." Accessed June 22, 2024. https://dti.most.gov.vn/bo-khcn-huong-dan-nguyen-tac-nghien-cuu-phat-trien-tri-tue-nhan-tao-co-trach-nhiem-218.htm

Mitra Keluarga. Company Presentations. https://investor.mitrakeluarga.com/

MoH Singapore. March 6, 2024. "Delivering Care Beyond Hospitals." Accessed June 3, 2024. https://www.moh.gov.sg/news-highlights/details/delivering-care-beyond-hospitals#:~:text=To%20meet%20 the%20needs%20of,will%20progressively%20ramp%20up%20services.

MoH Singapore. July 12, 2024. "Speech by Mr Ong Ye Kung, Minister for Health, At the Securities Investors Association (Singapore)'s 25th Anniversary Members' Night, 12 July 2024, 7.00pm, At One Farrer Hotel." Accessed July 15, 2024. https://www.moh.gov.sg/news-highlights/details/speech-by-mr-ong-ye-kung--minister-for-health--at-the-securities-investors-association-(singapore)-s-25th-anniversary-members--night--12-july-2024--7.00pm--at-one-farrer-hotel

MoH Singapore. Medishield Life FAQs. Accessed June 3, 2024. https://www.moh.gov.sg/healthcare-schemes-subsidies/medishield-life/medishield-life-faqs

MoH Singapore. Long-term Retention Scheme for Nurses In Public Healthcare. Accessed June 3, 2024. https://www.moh.gov.sg/news-highlights/details/long-term-retention-scheme-for-nurses-in-publichealthcare

Murni Teguh Hospitals. Annual Reports. https://www.rsmurniteguh.com/en/AboutUs/Hubungan Investor/laporan tahunan

New Straits Times. November 2, 2023. "Health Ministry mulls leasing approach for medical equipment, ambulance next year." Accessed June 3, 2024. https://www.nst.com.my/news/nation/2023/11/974288/health-ministry-mulls-leasing-approach-medical-equipment-ambulance-next

Nontipat Bangiwek. June 25, 2022. "Home ward' medical care speeds up." Accessed June 3, 2024. https://www.bangkokpost.com/thailand/general/2333613/home-ward-medical-care-speeds-up. Bangkok Post.

Padma Priya. April 15, 2024. "Warburg Pincus confirms investment in Vietnam-based hospital chain Xuyen A." Accessed June 3, 2024. https://www.dealstreetasia.com/stories/warburg-pincus-vietnam-xuyen-a-391933. Deal Street Asia. Parliament of Australia. 2024. Health Legislation Amendment (Removal of Requirement for a Collaborative Arrangement) Bill 2024. Accessed June 3, 2024. https://parlinfo.aph.gov.au/parlInfo/search/display/display. w3p;query=Id%3A%22legislation%2Fbillhome%2Fr7164%22

PhilHealth. Stats and Charts. Accessed June 3, 2024. https://www.philhealth.gov.ph/about_us/statsncharts/

Philippines Department of Budget and Management. General Appropriations Act. Accessed June 3, 2024. https://www.dbm.gov.ph/index.php/budget

Philippines FDA. February 15, 2024. FDA Circular No.2022-004 | | Implementing Guidelines on the Abridged and Verification Review Pathways for New Drug Registration Applications in accordance with Administrative Order No. 2020-0045 "Establishing Facilitated Registration Pathways for Drug Products including Vaccines and Biologicals." Accessed June 3, 2024. https://www.fda.gov.ph/wpcontent/uploads/2024/02/FDA-Circular-No.2022-004-A.pdf

Philippines House of Representatives. March 1, 2024. House Bill No. 7396: An Act Promoting the Development and Regulation of Artificial Intelligence in the Philippines. Accessed June 3, 2024. https://issuances-library.senate.gov.ph/bills/house-bill-no-7396-19th-congress

Philippines House of Representatives. House Bill No. 7913: Artificial Intelligence Regulation Act. Accessed June 3, 2024. https://issuances-library.senate.gov.ph/bills/house-bill-no-7913-19th-congress

Philippines House of Representatives. House Bill No. 10457: An Act Establishing a National Strategy for the Development of Artificial Intelligence and Related Technologies, Creating for this purpose the National Centre for Artificial Intelligence Research, and for other purposes. Accessed June 3, 2024. https://ldr.senate.gov.ph/bills/house-bill-no-10457-18th-congress-republic

Philippines Insurance Commission. January 25, 2024. Summary from 2018 – 2022 (Preliminary Figures). Accessed June 3, 2024. https://www.insurance.gov.ph/summary-from-2018-2022-preliminary-figures/

Philippines Senate. March 6, 2024. Senate Bill No. 2593: New Government Procurement Act. Accessed June 3, 2024. https://legacy.senate.gov.ph/lisdata/4364839677!.pdf

The Phuket News. October 14, 2022. "Cabinet approves B5bn for 'Andaman International Health Center". Accessed June 3, 2024. https://www.thephuketnews.com/cabinet-approves-b5bn-for-andaman-international-health-center-85876.php

Phuong Hoa. November 13, 2023. "Healthcare M&As growing in appeal." Accessed June 3, 2024. https://vneconomy.vn/healthcare-masgrowing-in-appeal.htm.VnEconomy.

Press Information Bureau. August 9, 2024. "Update on Arogya Mandirs." Accessed August 23, 2024. https://pib.gov.in/ PressReleseDetailm.aspx?PRID=2043513®=3&lang=1

ProtectHealth. Hospital Services Outsourcing Programme (HSOP). Accessed August 9, 2024. https://protecthealth.com.my/hsop/

Ragananthini Vethasalam, Tarrence Tan, Gerard Gimino. July 17, 2024. "Medical Act amendments passed in Dewan Rakyat." Accessed July 18, 2024. https://www.thestar.com.my/news/nation/2024/07/17/medical-act-amendments-passed-in-dewan-rakyat. The Star.

Republic of the Philippines Public-Private Partnership Center. UP Philippine General Hospital Manila Cancer Center Project. Accessed June 3, 2024. https://ppp.gov.ph/ppp_projects/pgh-cancer-center/

Ruth Abbey Gita-Carlos. January 23, 2024. "PBBM: Establishment of 179 specialty centers by 2028 eyed." Accessed June 3, 2024. https://www.pna.gov.ph/articles/1217441. Philippine News Agency.

Siloam Hospitals. Company Presentations. https://www.siloamhospitals.com/en/tentang-kami/hubungan-investor/presentasi-perusahaan

The Star. July 3, 2024. "Al governance, code of ethics guidelines to be distributed soon." Accessed July 8, 2024. https://www.thestar.com.my/news/nation/2024/07/03/ai-governance-code-of-ethics-guidelines-to-be-distributed-soon

The Star. December 15, 2023. "Over one million minor treatments given free under Madani medical scheme." Accessed June 3, 2024. https://www.thestar.com.my/news/nation/2023/12/15/over-1-million-minor-treatments-given-free-under-madani-medical-scheme

Taiwan Medical Association. 歷年統計年鑑. Accessed June 3, 2024. https://www.tma.tw/stats/index_AllPDF.asp

Ted Cordero. February 3, 2024. "PhilHealth: Increased benefits rates to take effect Feb. 14." Accessed June 3, 2024. https://www.gmanetwork.com/news/topstories/nation/896345/philhealth-increased-benefits-rates-to-take-effect-feb-14/story/. GMA News Online.

Thai FDA Medical Device Control Division. Software as a Medical Device (SaMD). Accessed on June 3, 2024. https://medical.fda.moph.go.th/samd-head/category/samd-03

Thailand Budget Bureau. 2024. Budget in Brief FY2024. Accessed June 3, 2024. https://bbstore.bb.go.th/cms/1724914677_6456.pdf

Thailand Budget Bureau. Budget in Brief. Accessed June 3, 2024. https://www.bb.go.th/en/topic3.php?gid=709&mid=456

Thailand General Insurance Association (TGIA). Non Life Insurance

Statistics. Accessed June 3, 2024. https://www.tgia.org/Non-LifeStatistics-EN

Thailand National Health Security Office. January 8, 2024. "NHSO greenlights 60 million baht for robotic cancer surgeries." Accessed June 3, 2024. https://eng.nhso.go.th/view/1/DescriptionNews/NHSO-greenlights-60-million-baht-for-robotic-cancer-surgeries/586/EN-US#:~:text=The%20National%20Health%20Security%20 Office,pancreatic%2C%20or%20bile%20duct%20cancer.

Thailand National Health Security Office. November 3, 2022. "Remote care to be piloted in Bangkok." Accessed June 3, 2024. https://eng. nhso.go.th/view/1/DescriptionNews/Remote-care-to-be-piloted-in-Bangkok/479/EN-US

Thailand National Health Security Office. November 15, 2022. "Strengthen primary care through pharmacies." Accessed June 3, 2024. https://eng.nhso.go.th/view/1/DescriptionNews/Strengthen-primary-care-through-pharmacies/480/EN-US

Thailand Ministry of Public Health. Health Data Center. Accessed June 3, 2024. https://hdcservice.moph.go.th/hdc/main/index.php

Thailand Ministry of Public Health. CMI@MOPH. Accessed June 3, 2024. https://cmi.moph.go.th/report/macro/index?menu_id=1

Trading Economics. Foreign Direct Investment. Accessed June 3, 2024. https://tradingeconomics.com/forecast/foreign-direct-investment

Trading Economics. Indonesia Interest Rate. Accessed June 29, 2024. https://tradingeconomics.com/country-list/interest-rate

Vietnam Social Security. February 19, 2024. VSS: 29 years of serving people and ensuring social security. https://vss.gov.vn/english/news/Pages/vietnam-social-security.aspx?CateID=0&ItemID=11642. Accessed June 3, 2024.

World Health Organization. Global Health Expenditure Database. Accessed June 3, 2024. https://apps.who.int/nha/database

World Bank. World Bank Indicators. Accessed June 3, 2024. https://data.worldbank.org/indicator

World Bank. World Development Indicators. Accessed June 3, 2024. https://databank.worldbank.org/source/world-development-indicators

World Bank. February 15, 2023. "Bringing Quality Healthcare Services Closer to Disadvantaged Communities in Vietnam." Accessed June 3, 2024. https://www.worldbank.org/en/news/feature/2023/02/15/bringing-quality-healthcare-services-closer-to-disadvantaged-communities-in-vietnam

World Bank. June 27, 2023. "World Bank Approves Support to Expand Indonesia's Efforts to Reduce Childhood Stunting." Accessed June 3, 2024. https://www.worldbank.org/en/news/press-release/2023/06/27/world-bank-approves-support-to-expand-indonesia-s-efforts-to-reduce-childhood-stunting

United States Agency for International Development. "United States Invests Rp 550 Billion in Indonesia's Efforts to Improve Public Services through Local Governance." Accessed June 3, 2024. https://www.usaid.gov/indonesia/press-release/united-states-invests-rp-550-billion-indonesias-efforts-improve-public-services-through-local-governance

Ven Sreenivasan. July 12, 2023. "Thomson Medical buys Vietnam's largest private hospital for \$517 million." Accessed June 3, 2024. https://www.straitstimes.com/business/thomson-medical-buys-vietnam-s-largest-private-hospital-for-517-million. The Straits Times.

Vietnam Investment Review. June 20, 2023. "HCM City looks to

effectively develop medical tourism." Accessed June 3, 2024. https://vir.com.vn/hcm-city-looks-to-effectively-develop-medical-tourism-102780.

Vietnam Plus. September 19, 2023. "HCM City to spend over 7 trillion VND on medical infrastructure, equipment." Accessed June 3, 2024. https://en.vietnamplus.vn/hcm-city-to-spend-over-7-trillion-vnd-on-medical-infrastructure-equipment-post268246.vnp

Vietnam Plus. August 21, 2024. "Vietnam embraces PPP to transform healthcare services." Accessed August 22, 2024. https://en.vietnamplus.vn/vietnam-embraces-ppp-to-transform-healthcare-services-post292306.vnp

Vietnam Ministry of Health. January 26, 2024. "Bộ Y tế và Bảo hiểm xã hội Việt Nam phối hợp hiệu quả, đảm bảo quyền lợi của người tham gia BHYT." Accessed June 3, 2024. https://moh.gov.vn/tin-noi-bat/-/asset_publisher/3Yst7YhbkA5j/content/bo-y-te-va-bao-hiem-xa-hoi-viet-nam-phoi-hop-hieu-qua-am-bao-quyen-loi-cua-nguoi-tham-gia-bhyt

Vietnam Ministry of Health. February 19, 2024. BÁO CÁO Tổng kết thực hiện Luật Bảo hiểm y tế giai đoạn 2009 -2023. Accessed June 3, 2024. https://chinhphu.vn/du-thao-vbqppl/ho-so-de-nghi-xay-dung-luat-sua-doi-bo-sung-mot-so-dieu-cua-luat-bao-hiem-y-te-6292

Vietnam General Statistics Office. Number of health staffs. Accessed June 3, 2024. https://www.gso.gov.vn/en/px-web/?pxid=E1411&theme=Health%2C%20Culture%2C%20Sport%20 and%20Living%20standard

Wahyudi Soeriaatmadja. July 11, 2023. "Indonesia passes Health Bill into law, allowing foreign doctors to practise locally." Accessed June 3, 2024. https://www.straitstimes.com/asia/se-asia/indonesia-passeshealth-bill-into-law-allowing-foreign-doctors-to-practise-locally. The Straits Times.

World Bank. January 16, 2023. "New World Bank Financing Aims to Strengthen Indonesia's Tuberculosis Response Program." Accessed June 3, 2024. https://www.worldbank.org/en/news/press-release/2023/01/16/new-world-bank-financing-aims-to-strengthen-indonesia-tuberculosis-response-program#:~:text=Washington%2C%20DC%2C%20January%20 16%2C,(TB)%20response%20in%20Indonesia

Yantoultra Ngui, Phuong Nguyen. January 19, 2024. "KKR invests into Vietnam's eye hospital Medical Saigon Group -memo." Accessed June 3, 2024. https://www.reuters.com/business/healthcare-pharmaceuticals/kkr-invests-into-vietnams-eye-hospital-medical-saigon-group-memo-2024-01-19/. Reuters.