

Shaping Asia's Healthcare for Tomorrow

QUADRIA
CAPITAL

Quadria Capital Thought Leadership



Predicting change to capture opportunity

The athlete, actor and idol to so many in our generation, Bruce Lee famously advised: "Knowing is not enough; we must apply. Willing is not enough; we must do."

These are wise words, especially in today's rapidly changing, increasingly complex and uncertain times. As we set out in this Thought Leadership document to put forward a set of intrepid predictions for the future of the healthcare industry in Asia, we recognize the importance of applying these learnings to capture opportunity.

Our work in this report draws on our observations, research and shared experiences of trends, events and small but significant changes that – if extrapolated over the coming years – paint a picture of an industry that is very different from today.

The forces of increasing urbanization, rising affluence, overwhelming and chronic disease burden are shaping Asia as the new center of gravity for the global healthcare industry. The intrinsic demand for healthcare services and products in Asia will accelerate and by early next decade, will surpass the size of total healthcare markets in the US and Europe currently.

Abrar Mir
Founder & Managing Partner

Bold and perhaps provocative but this, we believe, represents our opportunity.

With the industry expected to grow at around 12% per year over the next decade, many of the future global giants of the healthcare industry will emerge from Asia. Clearly, as an investor and strategic partner, we understand that we cannot create value by predicting trends alone. Our task is to apply the learnings to unlock opportunity from company specific circumstances and by partnering with the best management teams.

We believe that transformative change in the healthcare ecosystems is possible and that private capital can help solve one of the world's most intractable challenges. Harnessing private capital and a market orientation can create superior returns for our investors and achieve enormous social impact.

We hope this document will add to the rich dialogue that all predictions initiate.

Dr. Amit Varma
Founder & Managing Partner



Contents

| | |
|---|----|
| Global Healthcare's New Centre of Gravity | 7 |
| Seismic Shift Driving Growth | 21 |
| A Fast Evolving Industry Outlook | 37 |
| Capturing Opportunities Amidst Great Change | 67 |
| Harnessing the Power for Social Change | 77 |
| Delivering a Consistent Investment Strategy | 83 |



Global
Healthcare's
New Centre of
Gravity

The Asian healthcare story: Structural change driving growth

The global center of gravity of the healthcare industry is shifting rapidly. By early next decade, total healthcare spend in Asia will exceed US\$4 trillion and will represent a market opportunity larger than the US and Europe today.

With growth rates touching 12% per year, the industry is driven by structural mega-trends that are irreversible in nature. Rising populations, increasing affluence and growing chronic disease burden are creating explosive growth in demand for healthcare in the region. Equally, the natural comparative advantages for healthcare provision in Asia – including access to low cost manufacturing, raw materials and skilled labor have created a significant opportunity for local companies to emerge as regional and potentially world leaders.

Asia stands out as being the most exciting part of the world for healthcare businesses. Not only does Asia account for more than half the world's population already but adds almost 65 million people (the size of France) each year. With increasing affluence, Asia is expected to account 66% of the world's middle class by 2030, the demand for health is growing even faster.

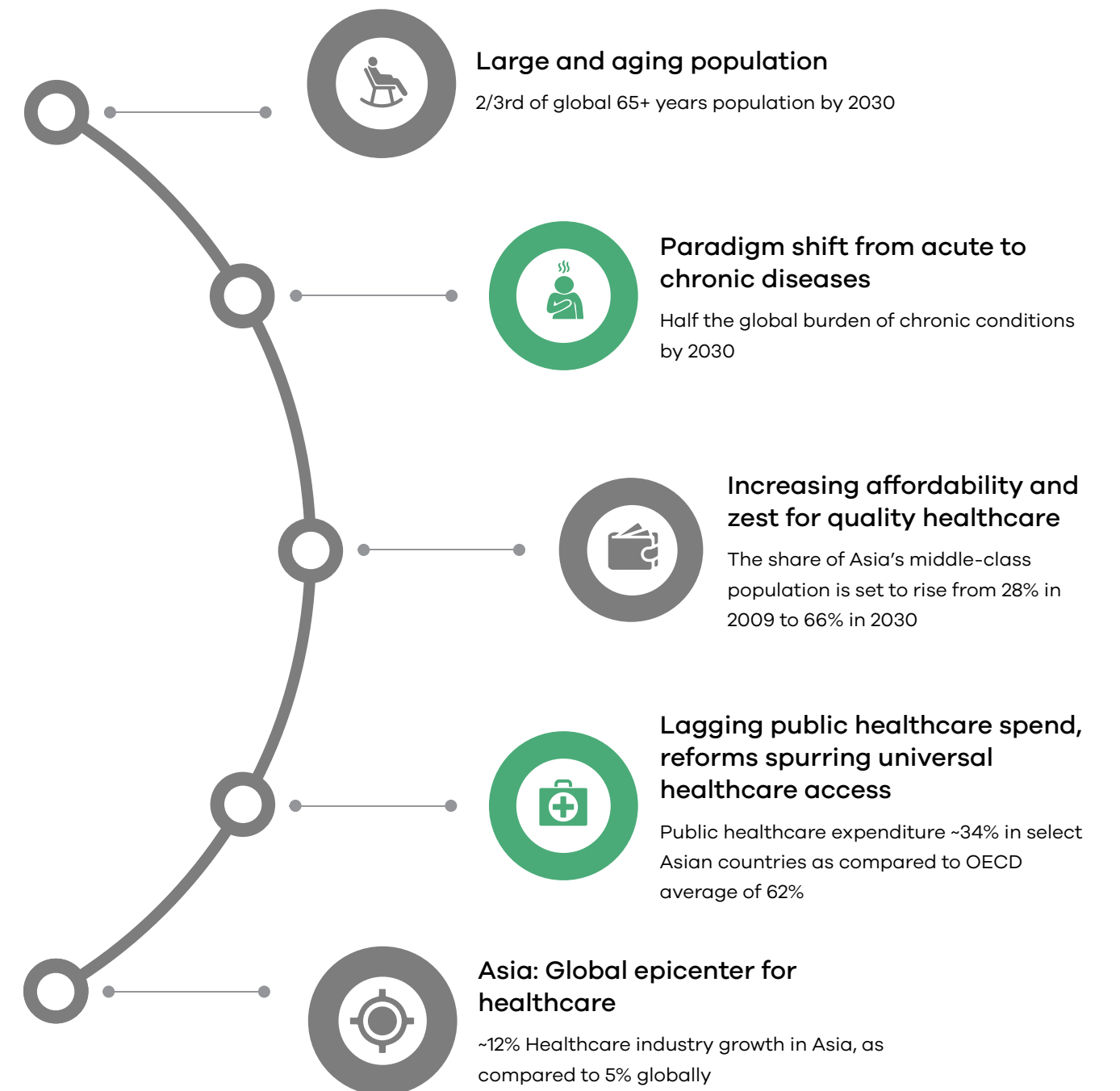
Asia today accounts for more than 60% of the world's disease burden with much of the problem shifting from infectious to chronic diseases. In particular,

the prevalence of diabetes, obesity, cardiovascular disease and cancer are on the rise. Such diseases require more intensive, recurring medical treatment leading to even higher healthcare demand.

Historical under-investment has translated into aging, under-developed and over-stretched healthcare systems across Asia. By any measure the statistics are stark: less than 0.5 beds per 1,000 against a WHO minimum recommendation of 5 and only 0.3 physicians per 1,000 versus 4 in the developed world. To reduce the growing pressure on public resources, governments in Asia are increasingly seeking the participation of the private sector to lead the way. Today, of every 10 new hospital beds built in Asia, 7 are being built by the private sector.

Private capital has become essential to increase the efficiency of healthcare, meet the capital needs to fill the gap between demand and supply and to drive the future growth of the industry.

These systemic changes form the catalyst for Quadria Capital's investments. By harnessing these structural forces, Quadria Capital seeks to work with companies that are best positioned to emerge as future leaders and take advantage of the immense growth opportunity ahead.



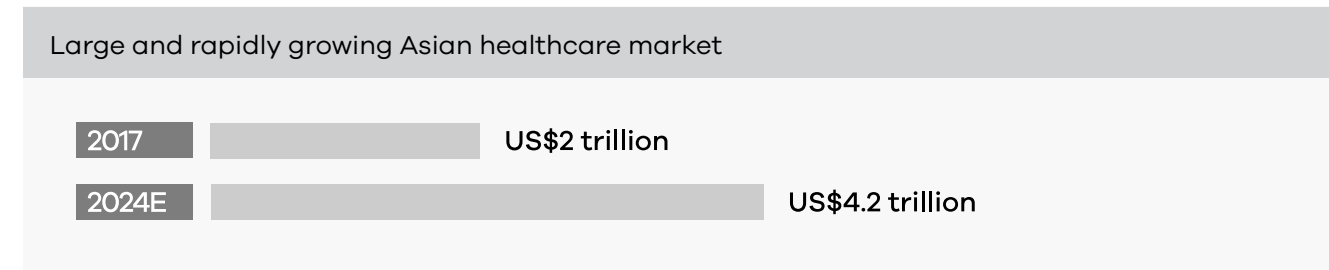
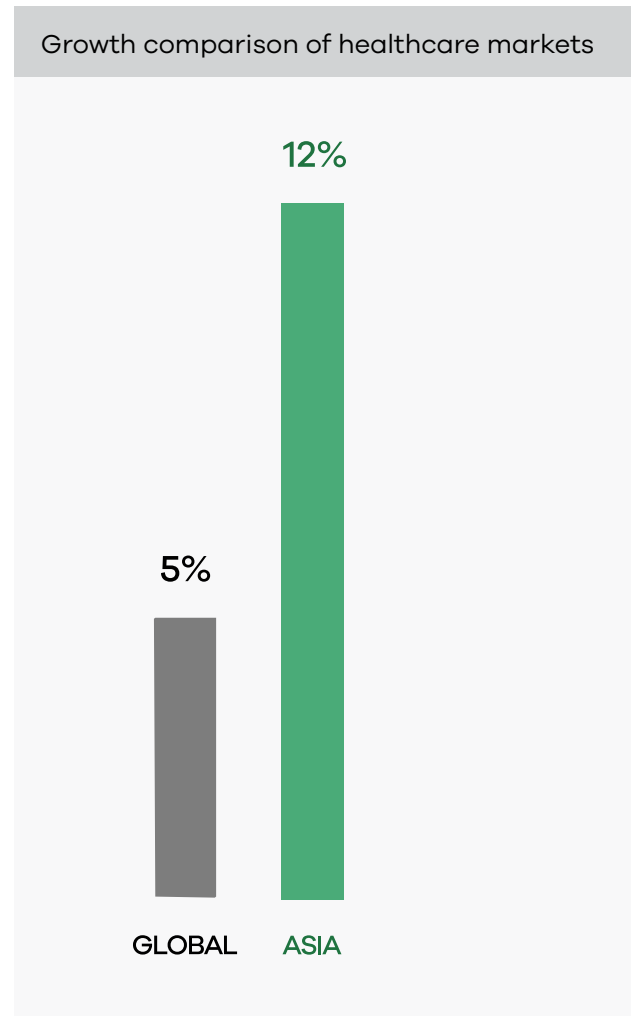
Asian healthcare: US\$4 trillion opportunity

South and Southeast Asia are the torch bearers.

Global healthcare industry is growing at a steady pace and will register a stable growth rate of 5% in 2018. In comparison, Asian healthcare is growing faster at ~12% corroborating with increased demand for healthcare attributed to growing and aging populations, and rising rates of non-communicable diseases (NCDs) like diabetes and cancer, driving the demand for greater healthcare services, products, and infrastructure. Further, rising middle-class incomes, as a result of economic growth and urbanization will add to this growth.

Sustainable growth rates in the Asian healthcare industry are set to continue in future. The staple essentials of a thriving Asian healthcare industry include access to low cost raw materials, manufacturing, R&D and a skilled pool of scientific and medical talent.

An unmatched opportunity for growth lends an optimistic outlook to Asian healthcare. Significant scope for growth is seen from highly developed healthcare markets of Singapore to emerging ones such as Indonesia, the Philippines, and Vietnam.



Advantage Asia

Robust Demand

Growing population with increased share of elderly age group (2/3rd of global 65+ years population by 2030).

Epidemiological shift from infectious to chronic and lifestyle diseases (>50% of global chronic disease burden by 2030).

Health protection schemes- precursor to universal health coverage in many Asian countries.

Attractive Opportunities

Shortage of 3.4 million beds in 2018, expected to surge to 3.6 million by 2022.

Investment in healthcare infrastructure is set to surge, advancing both 'hard' (hospitals) and 'soft' (R&D, education) infrastructure.

Natural comparative advantages of access to low cost raw materials, manufacturing and clinical research (25%-40% lower than western countries).

Quality and Affordability

State-of-the-art healthcare infrastructure with a cost advantage (15%-25% of the cost of developed nations).

Home to more than 25% of all JCI accredited hospitals.

Large pool of skilled medical professionals (~60,000 medical doctors graduate every year from India).

Conducive Policy Environment

Regulatory trends for faster approvals and enabling innovation.

Conducive government policies for encouraging foreign investment, reduced duties and tax exemptions.

Increasing regulatory pressure to widen and improve transparency in care costs and quality.

Asia, magnet for global healthcare investment, innovation, and growth

Asia should be the prime focus for companies seeking future growth as high growth opportunities will change the paradigm of product development and geographic rollouts. The continent's healthcare markets are large and will continue to grow due to a variety of ongoing developments, including a burgeoning middle class, rising wages, increasing government expenditures on healthcare, and the need for better medical equipment and drugs.



India driving global generics

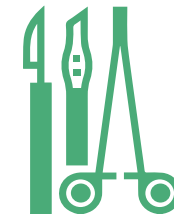
India accounts for over 10% of the global pharmaceutical production and 20% of the global exports of generic drugs.

The Indian pharmaceutical industry accounts for the 2nd largest number of Abbreviated New Drug Applications (ANDAs), is the world's leader in Drug Master Files (DMFs) applications with the US.

By 2020, India is likely to be among the top three pharmaceutical markets by incremental growth and 6th largest market globally in absolute size.

Indian domestic pharmaceutical companies received more than 300 approvals in 2017 to launch generic drugs in the US, which is an all-time high.

Despite the push for innovation in care delivery with greater emphasis on primary and community care across all Asian countries, hospital infrastructure will remain a major growth driver in the region. Unmet demand from emerging markets combined with increasing regulatory changes to attract foreign investment and private sector participation make hospital infrastructure an investment hotbed. Thailand, a world leader in medical tourism, has world-class medical facilities with its high-profile private hospitals and clinics. It has the highest number (60+) of JCI accredited and certified medical facilities in Asia. Apart from domestic growth drivers, growth of Asia is further accelerated by dominant capabilities in export of medical products and services to western countries. Of the top 20 global generic pharmaceutical companies, 12 are from Asia.



Malaysia's dominance in medical devices

Malaysia's medical device industry is worth US\$2 billion (2016).

The Association of Malaysian Medical Industries (AMMI) forecasts that medical device exports will grow by 15% in 2018.

Major Malaysian export categories are: surgical and examination gloves in which Malaysia has been the world's leader over the last 2-decades, other medical instruments, catheters, syringes, needles and sutures, medical and surgical X-ray apparatus.

Top export destinations for Malaysian products are the United States (22.9%), Belgium (22.6%), Germany (15.5%), and Japan (11%).





Thailand's gravitating medical tourism





Thailand is a world leader in medical tourism with prime facilities and high profile medical hospitals and clinics.

Thailand's medical tourism market surpassed 3.6 million medical tourists in 2016. The strong exchange rate, trained doctors, disruption caused in the aviation industry via low cost airlines and world class healthcare services at affordable costs are key ingredients of growth.

It is witnessing an increase in medical tourist arrivals from various countries like Australia, Taiwan, China, South Korea, France and Germany among others.

Asian healthcare landscape

| |  |  |  |  |
|---|---|---|--|---|
| | CHINA | INDIA | INDONESIA | MALAYSIA |
| Population (In million, 2018E) | 1,417.4 | 1,360.4 | 268.0 | 32.2 |
| Percent population Above 65 years (2018E) | 9.0% | 5.8% | 5.2% | 7.0% |
| GDP growth (annual %, 2016) | 6.7% | 7.1% | 5.0% | 4.2% |
| GDP per capita (current US\$, 2016) | 8,123 | 1,710 | 3,570 | 9,508 |
| Healthcare expenditure per capita (US\$, 2015E) | 483 | 82 | 108 | 493 |
| Healthcare expenditure CAGR (2015-2020E) | 17.5% | 10.7% | 7.9% | 13.9% |
| Health expenditure, public (% of total health expenditure, 2014) | 55.8% | 30.0% | 37.8% | 55.2% |
| Health expenditure, private (% of total health expenditure, 2014) | 44.2% | 70.0% | 62.2% | 44.8% |
| Healthcare expenditure (% of GDP, 2014) | 5.5% | 4.7% | 2.8% | 4.2% |
| Out-of-pocket health expenditure (% of total expenditure on health, 2014) | 35.2% | 67.1% | 46.9% | 36.6% |

| |  |  |  |  |
|---|---|---|---|---|
| | PHILIPPINES | SINGAPORE | THAILAND | VIETNAM |
| Population (In million, 2018E) | 107.2 | 5.8 | 69.2 | 96.9 |
| Percent population Above 65 years (2018E) | 4.7% | 12.4% | 10.5% | 6.8% |
| GDP growth (annual %, 2016) | 6.9% | 2.0% | 3.2% | 6.2% |
| GDP per capita (current US\$, 2016) | 2,951 | 52,962 | 5,911 | 2,171 |
| Healthcare expenditure per capita (US\$, 2015E) | 148 | 3,094 | 241 | 162 |
| Healthcare expenditure CAGR (2015-2020E) | 7.2% | 13.0% | 10.3% | 13.7% |
| Health expenditure, public (% of total health expenditure, 2014) | 34.3% | 51.1% | 77.8% | 54.1% |
| Health expenditure, private (% of total health expenditure, 2014) | 65.7% | 49.0% | 22.2% | 45.9% |
| Healthcare expenditure (% of GDP, 2014) | 4.7% | 4.9% | 4.1% | 7.1% |
| Out-of-pocket health expenditure (% of total expenditure on health, 2014) | 55.4% | 38.2% | 12.9% | 41.7% |

Predicting change to shape future opportunities



Rapid growth of diagnostic services

Emerging trend of precision medicine and focus on preventive care, walk-in/direct-to-customer diagnostic services are expected to drive growth in diagnostics arena. New models of outsourcing clinical tests to private labs will be on the rise to streamline and increase efficiency.



Shift to minimally invasive procedures and outpatient hospital care

Growing number of patients, cost constraints, focus on improved clinical outcomes supported with innovative technologies is driving the shift towards minimally invasive procedures. This also fast tracks patient recuperation time giving rise to increased outpatient care systems.



Asian countries take the lead on smart hospital projects

By 2018, South Korea, Australia, Singapore, and Malaysia will account for over 3,200 smart hospital beds.



Care extending outside of the hospital

The traditional hub and spoke model is changing as those spokes become increasingly more specialized and functional in providing targeted services. Home care has brought basic medical services into the comfort of the patient's home.



Asian countries taking the lead in biosimilars and regenerative medicine

Supported by availability of sophisticated R&D facilities meeting international standards and cost effective labor, Asia has taken strides in the biosimilar and regenerative medicine domain.



Emergence of single specialty hospitals

Easy scalability, low investments, ease of operations, healthy EDITDA levels and operational performance will lead to emergence of single specialty hospitals as an attractive opportunity.



Big tech companies (GAFA) get serious about healthcare

A tangible focus for clinical oriented solutions and health apps by tech companies like Google, Apple, Facebook and Amazon to compete outside their domain and break out of core company dominant business model.



Digital and remote clinical trials adoption increases efficiency and patient-centricity

Digitalization will play a critical role in transforming the clinical trials model from traditional (centralized) high cost and difficult to access settings to more patient-centric and efficient virtual models.

Asian healthcare is poised to grow across sectors

36%

share in Global Medicine Spending in 2018

US\$20 billion

Indian drugs exports forecast by 2020

US\$12.7 billion

Asia's Digital Healthcare market size in 2018

7 million+

Medical tourists visited Asia in 2016

3.4 million

Additional hospital beds needed in Asia in 2018

20%

growth in clinical trials market
driven by digital platform





Seismic Shift Driving Growth

Asia's 4.5 billion people present a large and attractive opportunity

Asia is home to nearly 60% of the world's population. Asia's annual population growth rate of 1.5% approximates that of the world's average; its sheer size sees it add close to 65 million persons every year a number that is higher than the most populated nations of Europe (such as France or the United Kingdom).

This humongous population increasingly strains its resources and imposes severe pressure on existing healthcare infrastructure. Asia presents a large consumer base that can be tapped by private healthcare companies across diverse sectors ranging from drug manufacturing, hospitals, medical device and technology, health IT, health insurance and wellness.

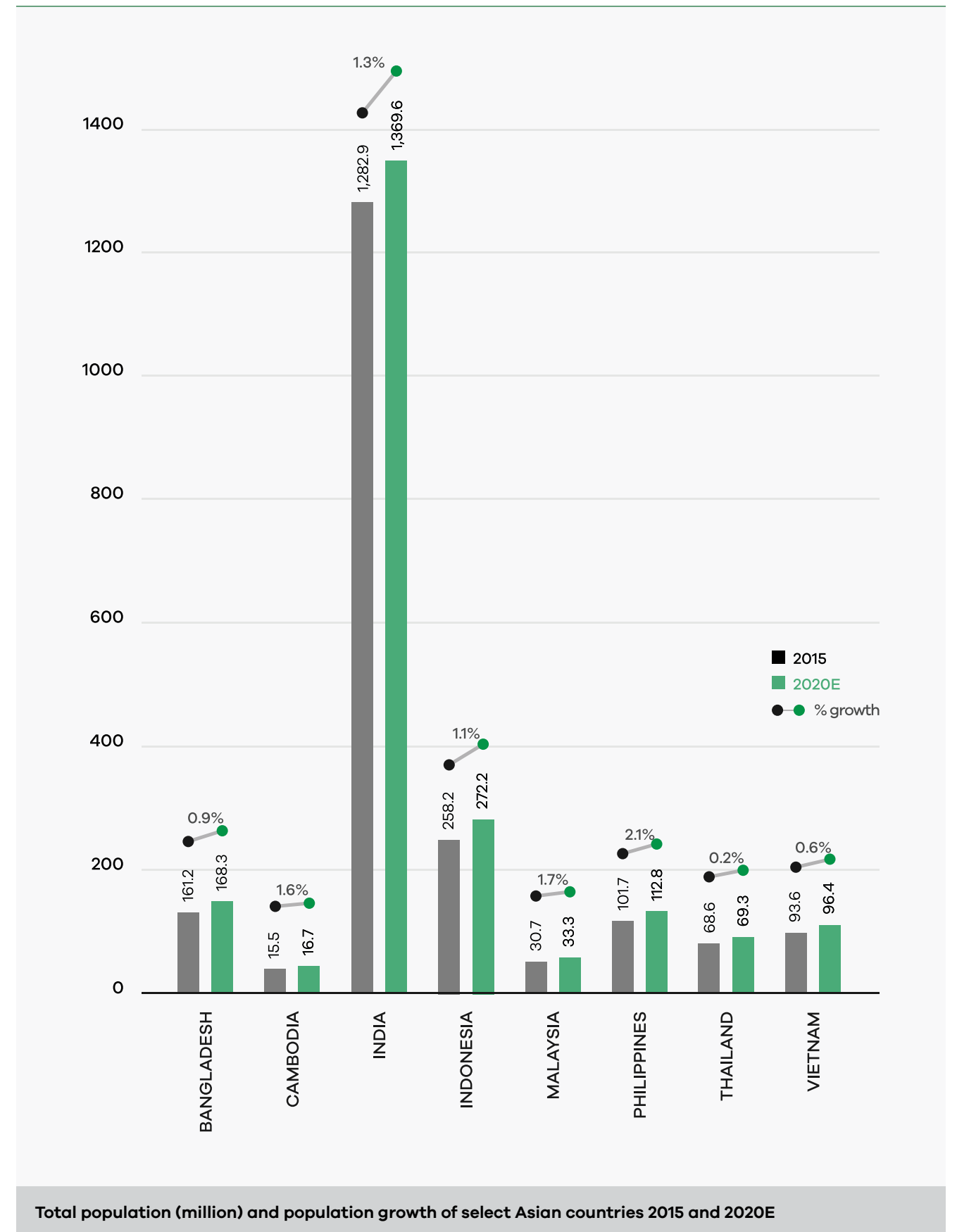


The zoomed circle in Asia contains more than half the world's population

22 of the world's 37 mega cities are located here

60%

Asia was home to nearly 60% of the world's population in 2016



Total population (million) and population growth of select Asian countries 2015 and 2020E

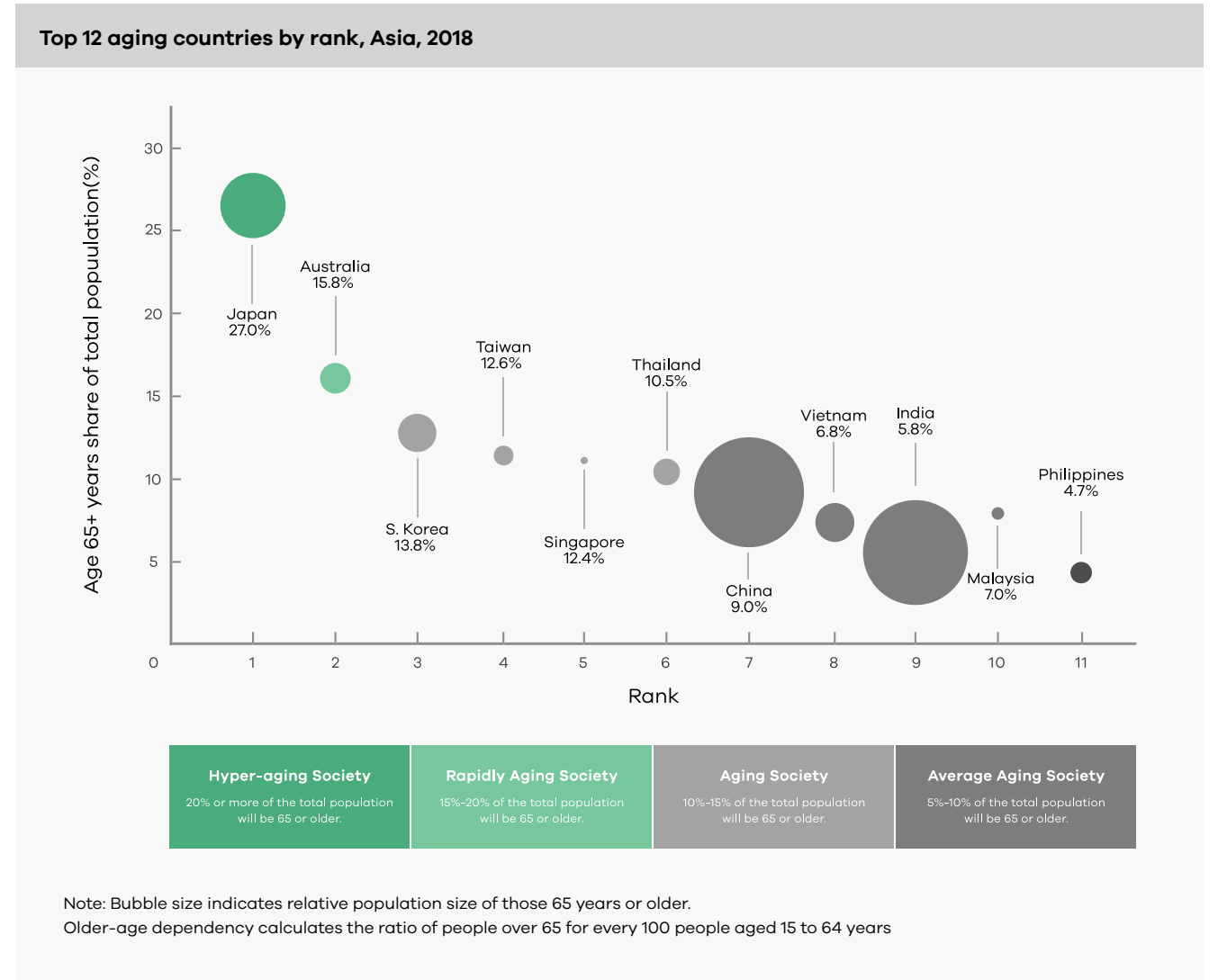
Asia's greying population to spur healthcare demand

Over half the world's population aged 65-years and more can be found in Asia with the number growing rapidly due to improvements in life expectancy and decreasing fertility rates. Consequently, Asia's aging population is set to reach 565 million by 2030.

Of the roughly 150,000 people who die each day across the globe, about two-thirds, that is, 100,000 per day die of age-related causes, such as atherosclerosis and cardiovascular diseases, cancers, arthritis, osteoporosis, type 2 diabetes, hypertension and Alzheimer's.

This trend of aging will accelerate demand for healthcare products and services catering specifically for 65-years and more segment. This is an opportunity waiting to be tapped by tertiary and super specialty hospitals that should channelize their focus into geriatric care and subsequently open up vistas for home healthcare services, point of care diagnostics, hospice, medical alert systems and other health care models. Healthcare IT also offers tremendous scope to create a meaningful impact in reducing long-term healthcare costs.

An aging population would drive demand for healthcare services: With higher prevalence of chronic diseases and a high hospitalization rate in the elderly compared to younger people.

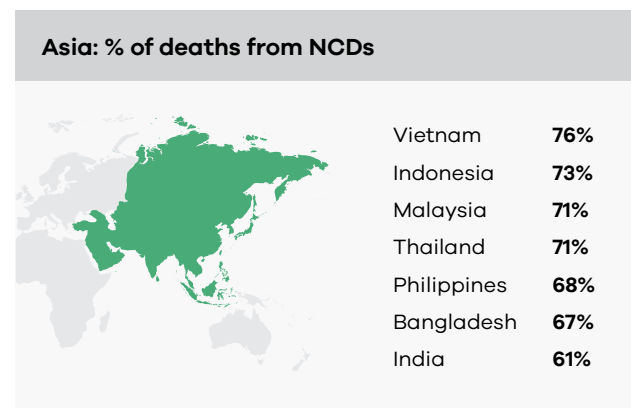


Disease burden shifting from infectious to chronic diseases

Chronic diseases are on the rise as Asian countries get richer.

Asia's healthcare systems have historically been designed to provide the acute care needed to respond to infectious diseases. With the rising incidence of chronic diseases, the demand on healthcare systems ill-equipped to deal with these diseases could become unmanageable.

The growth in NCDs has led to a "dual burden of disease" for countries in Asia: having to transform health systems built to fight infectious diseases and provide acute care to manage the silent epidemic of chronic diseases like diabetes, heart diseases, respiratory illnesses and cancers. High levels of major risk factors for NCDs suggest that resulting health problems will continue to rise and progressively affect younger age groups, creating a significant impact on the workforce and overall development. Increasing stress levels due to a growing urban population will result in a consequent increase in NCDs. This also creates opportunities for global medical device and pharmaceutical companies that have portfolios covering these lifestyle diseases.



Confronting the shifting disease burden, great opportunities exist for healthcare players to find new solutions to entrenched problems.

Asia is on track to become the global epicenter for diabetes.

The prevalence of diabetes in the region is set to double over the next 15 years. Currently, there are about 138 million diabetics in Asia, with the number projected to rise to 215 million by 2040. Moreover, around 45% and 60% diabetics are under-diagnosed in India and Indonesia, respectively. A ready-made opportunity to offer continuous care for diabetic patients with prevention and disease management programs is taking center-stage.

Asia, slated to be home to half the global burden of chronic conditions by 2030, a size noteworthy of specialist care.

The growing prevalence of NCDs has created a need for specialty care facilities, wellness plans, healthy products, and health tracking devices.

Cardiovascular diseases and cancers are the other two rising waves of NCDs engulfing Asia, putting an enormous strain on health systems and felling ever growing numbers of people in their most productive years. Cancer patients in Asia are more likely to die than most other regions due to lack of resources for screening and treatment. India alone accounts for 27% of global cervical cancer deaths, largely due to the low availability of screening.

More than half

of all adults (~590 million) suffer from hypertension in East, Southeast and South Asia

60%

of the world's diabetics live in Asia

2/3rd

of all deaths are caused by cardiovascular diseases and cancers in Asia

51%

of all cancer deaths globally occur in Asia

100 per million

population in India succumb to kidney disease; 90,000 kidney transplants per year are required in India

344 million

people will need mental health services in Asia

524 per million

joint replacements conducted in patients aged 45+ years is much lower in India compared to the UK (7,894 per million) which depicts treatment gap and vast opportunity for diagnosis and treatment

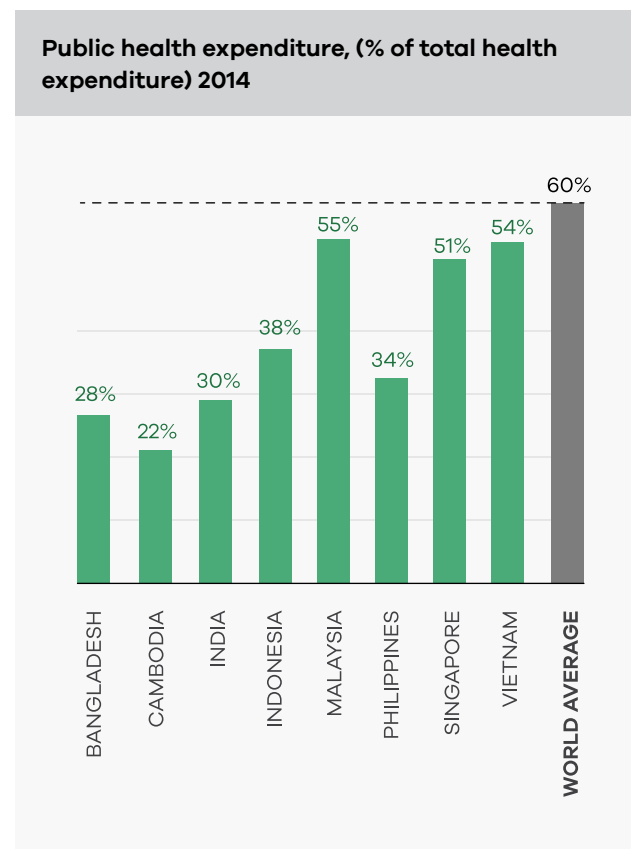


Historic low government spend has left Asian healthcare highly under-invested

Healthcare is a prominent example where the least progress has been made in Asia, despite its high economic growth and success in poverty reduction

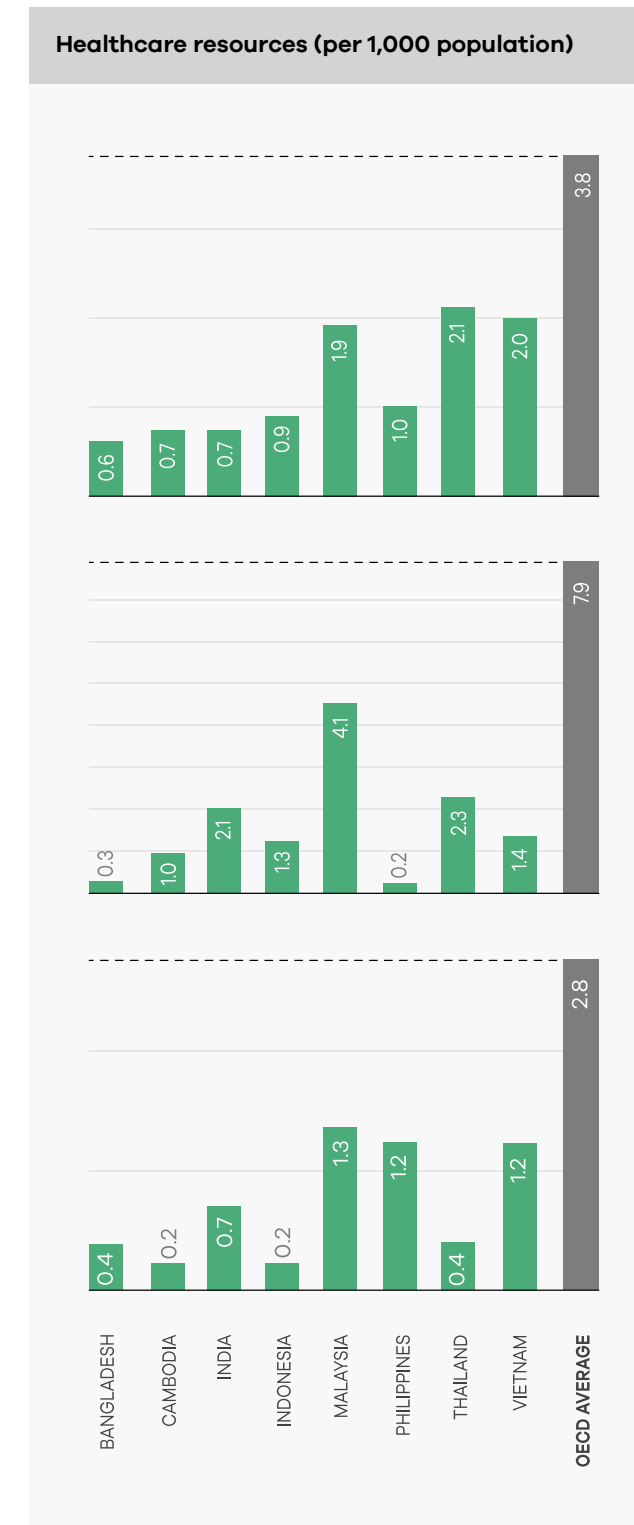
Government spending on health tends to be low in the region, particularly in less developed countries, with half of them spending less than 5% of their GDP on health. The region has the world's highest dependence on out-of-pocket expenditure to finance healthcare systems and the highest number of households driven into poverty by the need to pay at the time of service.

Compared with private hospitals most government owned healthcare facilities in the region are of lower quality standards. A severe hospital bed shortage and lack of a skilled workforce in many countries overflows urban public hospitals and prolongs wait times. To resolve these issues and overcome these challenges, governments in Asia seek to attract private capital into the healthcare system to enhance healthcare infrastructure and its workforce. For investors, this creates opportunity to unlock superior investment returns in a fast growth healthcare industry.



Source: WHO, World Bank

Maldistribution of hospital beds, physicians, and nurses prevents equitable access to healthcare



Hospital beds (million)

3.4 million

additional hospital beds needed in select Asian countries



Nurses and midwives (million)

2.5 million

more nurses and midwives are needed in select Asian countries



Physicians (million)

1.5 million

additional physicians needed in select Asian countries

Source: IMF, WHO, World Bank 2014, OECD Asia Pacific 2016

Expanding middle class and increasing affluence driving expenditure

The unprecedented middle class sprawl

By 2030, two-thirds of the global middle class will be in Asia; a significant proportion of this would comprise the upper end of the income bracket and boast of impressive spending power. A burgeoning middle class and increase in awareness would propel demand for higher quality healthcare services.

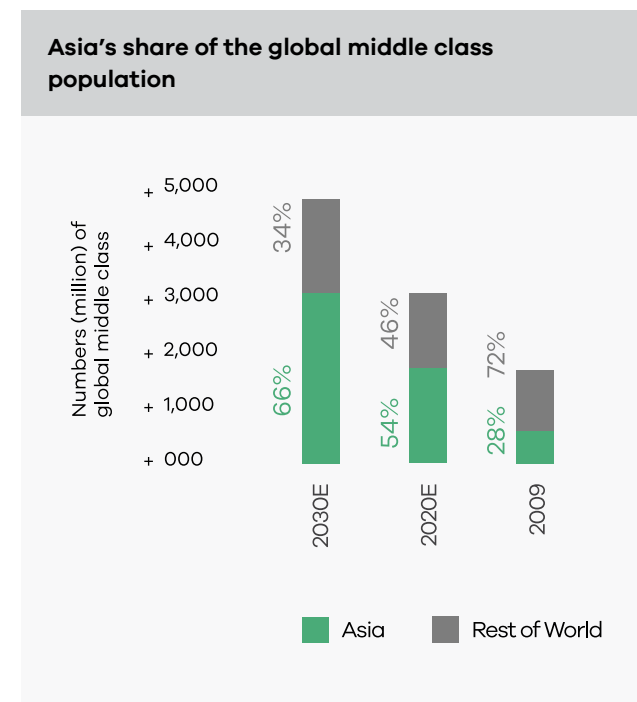
creating accessible and affordable healthcare. Governments push to encourage greater private sector participation in shouldering the cost burden, especially through regulatory reform is driving foreign investment into the sector.

Amidst on-going efforts by public sector, private health insurance will drive growth

Asia's insurance penetration significantly trails the U.S. and Europe.

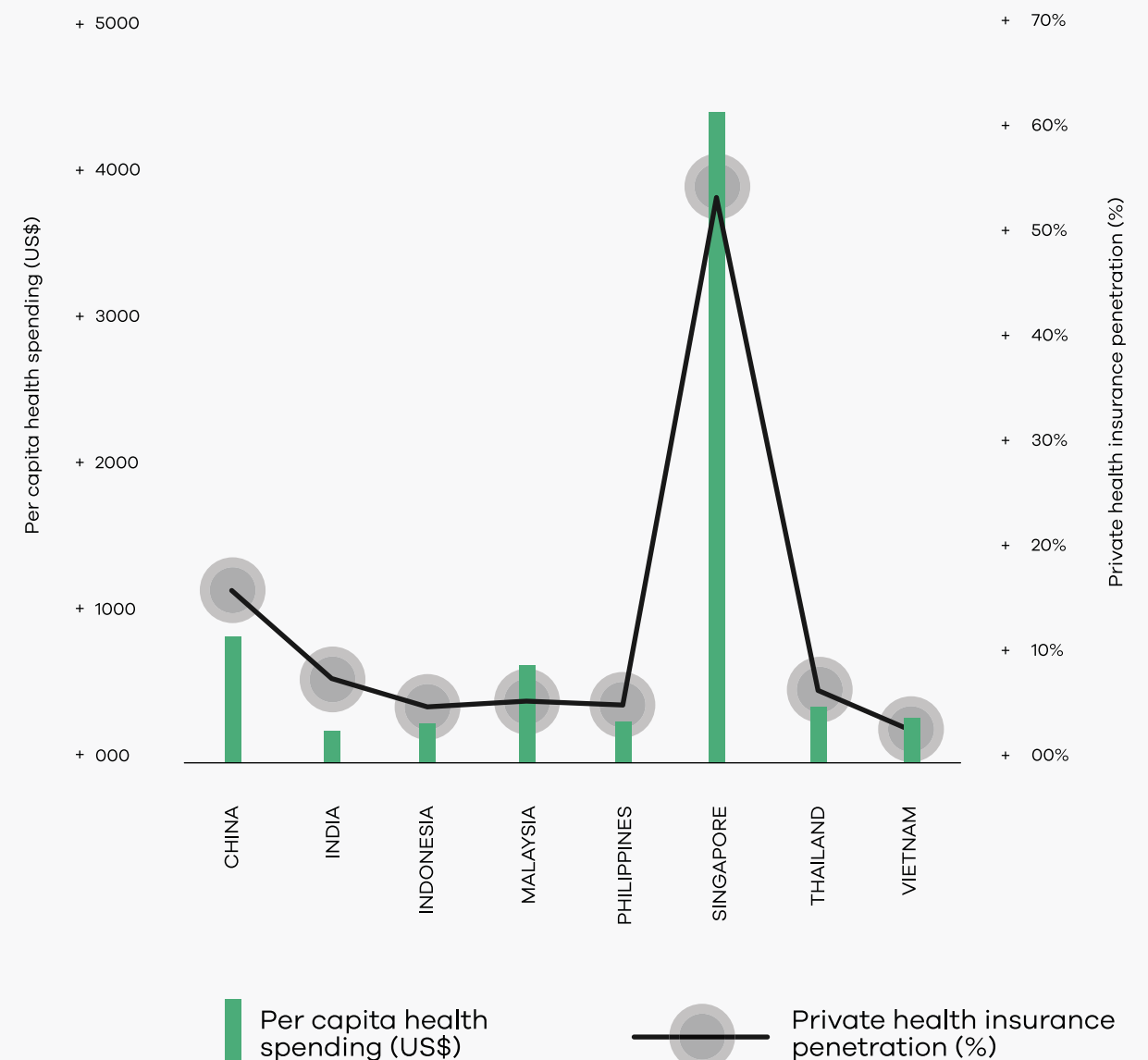
A major self-pay market, in Asia a large part of healthcare spend is out-of-pocket. High out-of-pocket expenditures prevent access to care; nevertheless, they fuel demand for private health insurance. This could result in an increase in demand for healthcare services, especially non-essential treatments.

This also widens the scope for private investors to not only provide capital but expertise in



Per capita healthcare spending versus private health insurance (PHI) penetration, Asia, 2018

Over 2 million people will buy new private health insurance across the region in 2018





Increasing coverage – toward universal healthcare

Institution of universal healthcare is a high priority for many Asian governments. A few examples:



The Philippine Health Insurance Corporation (PhilHealth) was created in 1995 to implement universal health coverage in the Philippines. Its stated goal is to ensure a sustainable national health insurance program for all.

In 2010, it claimed to have achieved “universal” coverage at 86% of the population.

As of June 2013, coverage of the program was estimated at 100%.



Vietnam has made significant progress toward achieving universal health coverage (UHC) since it announced the Health Insurance law in 2009.

The health insurance penetration increased from 60% in 2009 to 86% in 2017.

The UHC aims to cover 82% of its population by 2020; to meet the growing demand for hospital beds, drugs, medical devices, diagnostic tests, and qualified and skilled healthcare professionals and improve the distribution of workforce and infrastructure.



Government of India announced “Ayushman Bharat Yojana” in early 2018. The scheme is set to bring a paradigm shift by 2022 in the health sector:

- Increased benefit cover to nearly 40% of the population: 500 million beneficiaries
- Covering almost all secondary and many tertiary hospitalizations
- Coverage of US\$ 7,400 for each family

Supportive regulatory policy encouraging growth of private investment

Bridging Asia’s healthcare need gaps

With the private sector leading the way, governments in Asia continue to assist in attracting private capital into the healthcare system to increase its efficiency and reduce the growing strain on public resources. A low share in GDP for public healthcare spend ensures space for complimentary private and public initiatives.

Conducive government policies for encouraging foreign investment, tax benefits coupled with promising growth prospects have helped the industry attract private capital and strategic investment. Policy alterations in the form of reduced excise and customs duty, and exemption in service tax have buoyed support further.

Reforms spurring greater healthcare access

| | Regulation | Impact Analysis |
|---|---|--|
|  India | Ayushman Bharat: National Health Protection Scheme | This will increase access to in-patient health care for the poor and lower middle class |
| | The draft pharmaceutical policy in 2017 has a proposal to strip generic medicines of their brand names to curb high prices | The intent of the pharmaceutical policy is to make medication more affordable |
| | Conducive government policies for encouraging foreign investment, reduced duties and tax exemptions | The liberalized policies will witness rise in healthcare investments and consequently increased access to healthcare |
|  Indonesia | Changed restriction on foreign ownership to allow majority investment in general hospitals and majority ownership of pharmaceutical raw materials manufacturing | Indonesia is witnessing a rise in the number of private hospitals |
|  Malaysia | The Government plans to open up the private hospital services sector to 100% foreign equity participation; previously restricted to 30% for WTO members and 70% for ASEAN members | Private funding to address the challenge of resource and infrastructure distribution across rural and urban centers |
|  Vietnam | Foreign investors can set up a 100% foreign capital or JV hospital/medical facility through partnerships with a local investor | The reforms have piqued interest of hospital industry stakeholders in Vietnam's private sector |
| | Promoting foreign investments in developing information and communication technologies (ICT) infrastructure in the public sector by 2020 | Private healthcare funds will be invested in ICT infrastructure to improve efficiency in healthcare delivery |









A Fast Evolving Industry Outlook

Asia is on the cusp of a health revolution

Burgeoning healthcare need is driving the growth of Asian healthcare. Several favorable factors like increased healthcare investments and government initiatives that promote medical insurance and foreign investment, are increasing access to healthcare facilities.

There are sustained efforts from Governments to make healthcare accessible and affordable by various regulatory reforms and innovative healthcare access programs including Public Private Partnerships.

Key Asian countries to watch

| | | | |
|---|---|--|---|
|  <p>India</p> <p>Ayushman Bharat Scheme is aimed to increase access to healthcare</p> <p>'Make in India' initiative encourages local medical device manufacturers</p> <p>Government focus on price caps on medical devices, to increase accessibility</p> <p>'Digital India campaign' mainstreaming telehealth and technology to facilitate health records</p> |  <p>Indonesia</p> <p>The universal coverage scheme, Jaminan Kesehatan Nasional (JKN) is expected to cover 250 million people by 2019, escalating demand for medical products and services</p> <p>Hospital groups are particularly bullish on infrastructure expansion in 2018-19</p> |  <p>Malaysia</p> <p>The government is investing in providing accessible healthcare to its citizens through highly subsidized healthcare services</p> <p>The government has proposed the Healthcare Travel Council (MHTC) to introduce the flagship medical tourism hospital program</p> |  <p>Thailand</p> <p>In 2016, the Government announced a 10-year strategic plan to be implemented from 2016-2025, aimed to develop and consolidate the economy as a hub for wellness and medical services</p> <p>Thailand government launched Thailand 4.0 policy to develop high value innovative industries such as biotechnology, medical care and smart electronics in 2016</p> |
|---|---|--|---|

Consumerism, transparency and innovation have evolved as critical success factors



Consumer - New king in healthcare decision making

- Across most healthcare markets and countries in the region, patients are no longer passive consumers
- There is an increasing demand for inclusion, and decision control from this segment. Thus, industry stakeholders need to be much more patient-focused than before



Evangelize transparency

- Demand for transparency also leads to the need for more thorough data sets demonstrating the value of new therapeutics, devices, treatment pathways, technologies and business models
- Generating evidence is critical at this point



Business model innovation





- Continuing concerns around individual and overall healthcare spending and affordability will make costs a key determinant of success
- While frugal innovation is one approach, increasingly the region finds business model innovation more appetizing







Purpose-built digital platforms

- Demand and service gap will continue to persist in the region
- Industry participants need innovative strategies and digital platforms to reduce the gap across geographic and economic segments

Asia healthcare investment landscape

| |  CHINA |  INDIA |  INDONESIA |  MALAYSIA |
|--|--|---|--|--|
| Number of hospitals (2018E) | 46,765 | ~200,000 | 2,626 | 373 |
| Hospital beds per 1,000 population | 3.8 | 0.7 | 0.9 | 1.9 |
| Bed demand (2018E) - in million | 7.5 | 5.0 | 0.7 | 0.1 |
| Doctors per 1,000 population | 1.9 | 0.7 | 0.2 | 1.3 |
| Private health insurance penetration (2018E) | 15.1% | 6.8% | 4.0% | 4.5% |
| Healthcare funding environment | <p>Government is the major provider of healthcare</p> <p>Private healthcare spending accounts for ~44% of total healthcare expenditure</p> | <p>Government introduced National Health Protection Scheme to cover 100 million families for healthcare which is ~40% of the population</p> <p>To increase access to healthcare, government allocated US\$185 million for 150,000 health and wellness centers</p> | <p>Introduction of National Health Insurance Scheme in 2014 meant to give 100% healthcare coverage to all Indonesians by 2019</p> <p>Government stepping up efforts to expand healthcare infrastructure</p> <p>Limited but growing private insurance</p> | <p>Dual healthcare system with heavily subsidized public system; effective but over utilized</p> <p>Malaysia's government proposed US\$6.6 billion in the 2018 healthcare budget to enhance healthcare services</p> <p>Under the Economic Transformation Program of Malaysia (ETP), the government targets 75% of population being insured by 2020</p> |

| |  PHILIPPINES |  SINGAPORE |  THAILAND |  VIETNAM |
|--|--|--|---|---|
| Number of hospitals (2018E) | 1,882 | 30 | 1,320 | 1,424 |
| Hospital beds per 1,000 population | 1.0 | 2.0 | 2.1 | 2.0 |
| Bed demand (2018E) - in million | 0.1 | 0.02 | 0.3 | 0.3 |
| Doctors per 1,000 population | 1.2 | 1.9 | 0.4 | 1.2 |
| Private health insurance penetration (2018E) | 4.1% | 50.3% | 6.0% | 2.5% |
| Healthcare funding environment | <p>Universal health coverage is driving the growth and further diversification between public and private healthcare by premium services provided</p> <p>Government run insurance programs with focus on cheaper generic drugs</p> | <p>Universal healthcare, offering basic healthcare access and subsidized prices</p> <p>Singapore government provides >50% of total costs of hospital bills, 27% incurred by employers and patients, rest covered by compulsory savings from payroll within a nationalized health insurance plan</p> | <p>Universal coverage through 3 health schemes with high public spending</p> <p>Private hospitals financed through OOP and PMI (less so through public schemes)</p> <p>3 government healthcare schemes which cover 94% of Thailand's population: Civil servant medical benefits, social security scheme and universal healthcare scheme</p> | <p>Most healthcare expenditure is out-of-pocket; 90% of patients have to make a co-payment with private spending contributing over 62% of total healthcare expenditure</p> <p>By 2020, 82% of people are expected to be covered by national health system</p> <p>Uneven and inadequate public insurance coverage hampers stronger market growth</p> |



Healthcare delivery Providing an economic impetus to healthcare systems

Evolution of Asian healthcare delivery

| PHASE 1 | PHASE 2 | PHASE 3 |
|--|---|--|
| Pre and early 1980s | Late 1980s through 2000s | Early 2010 and beyond |
| <p>WATERSHED</p> <ul style="list-style-type: none"> • Trusts / government-owned hospitals • Single doctor-owned and managed nursing homes • Low focus on technology and patient experience | <p>TAKE OFF</p> <ul style="list-style-type: none"> • Large standalone hospitals • Evolution of super specialty hospitals and centers • Hub and spoke model of care • New project funding by financial institutions | <p>THROES OF CHANGE</p> <ul style="list-style-type: none"> • Emergence of corporate chains • Increased usage of technologies and IT • Growth of health insurance • Advent of single specialty hospital business model |

Greater competition between healthcare providers has led to increased development of competitive features, such as premium care facilities, aesthetic and wellness medicine facilities, improved patient customer service, and so on. This has also stimulated the increased application of technology in both medical devices and information.

Also, in pursuit of lower-cost, higher-profit care options, providers in Asia are expanding outside of the traditional acute hospital setting into outpatient clinics and standalone surgery centers. Newer models of care are coming up representing possible growth and investment opportunities.

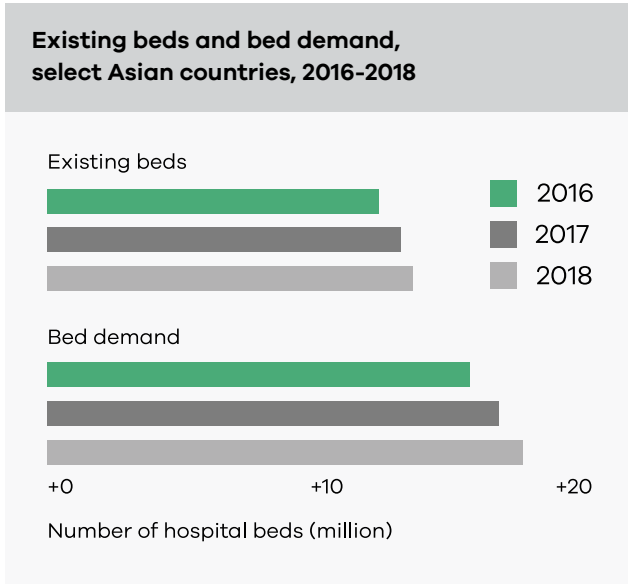
Hospital infrastructure will continue to be a major growth driver in the region



Asia will face a shortage of 3.6 million beds by the end of 2022

Despite the push for innovation in care delivery with greater emphasis on primary and community care across all Asian countries, hospital infrastructure will continue to be a major growth driver in the region.

Bed capacity is increasing across Asia; however, the unmet demand combined with increasing regulatory changes to attract foreign investment and private sector participation makes hospital infrastructure a significant area of investment.



The healthcare industry in Asia provides several opportunities for investments

Under-spend and insufficient coverage depth of public insurance systems in Asian countries.

Medical tourism continues to be a growth opportunity for many Asian countries, which requires further investment in developing infrastructure.

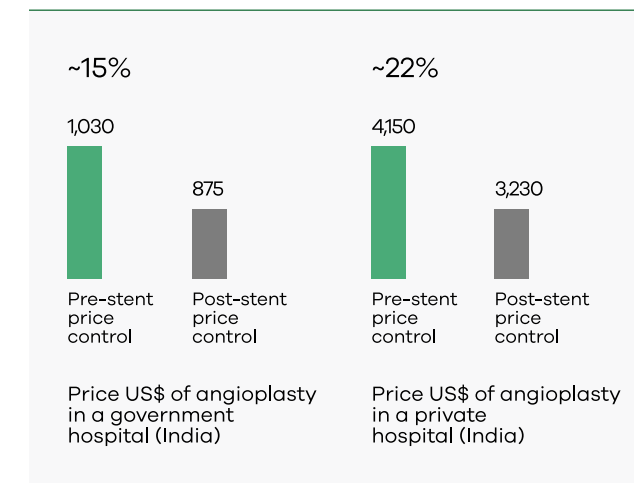
Government push to encourage greater private sector participation in shouldering the cost burden, especially through regulatory reform driving foreign investment into the sector.

Penetration of healthcare services in many Asian countries is concentrated in urban centers. Infrastructure development in tier II cities and rural areas is growing.

Government focus to improve healthcare access will open new possibilities for private players

Governments in Asia are actively engaged in overhauling regulatory reforms to increase access and affordability at the same time bringing in transparency in care cost and quality of care.

In 2017, India's National Pharmaceutical and Pricing Authority (NPPA) capped prices for coronary stents and knee implants. This is a significant move toward the government's push to provide affordable healthcare and expected to increase the uptake of services in private hospitals.



Price cuts make life-critical devices more accessible to common patients and also incite frugal innovation

Key industry issues to be addressed in Asia

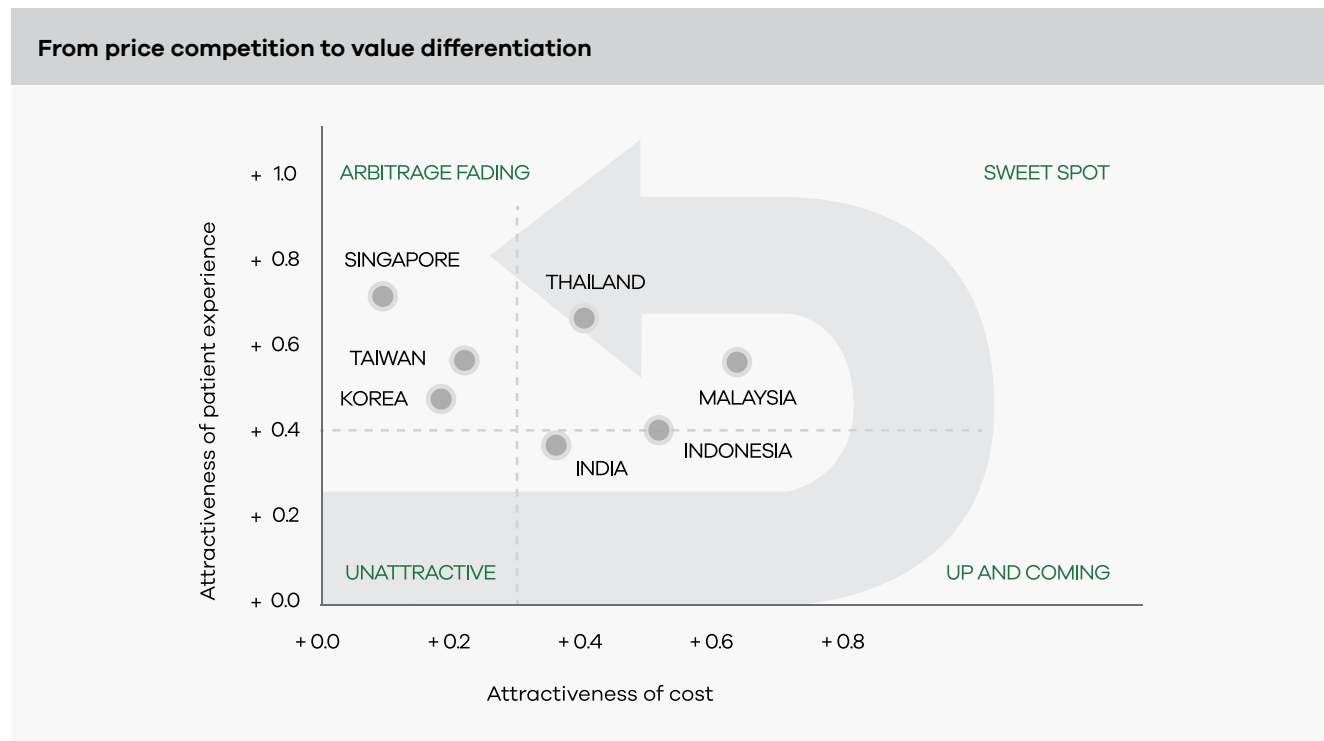
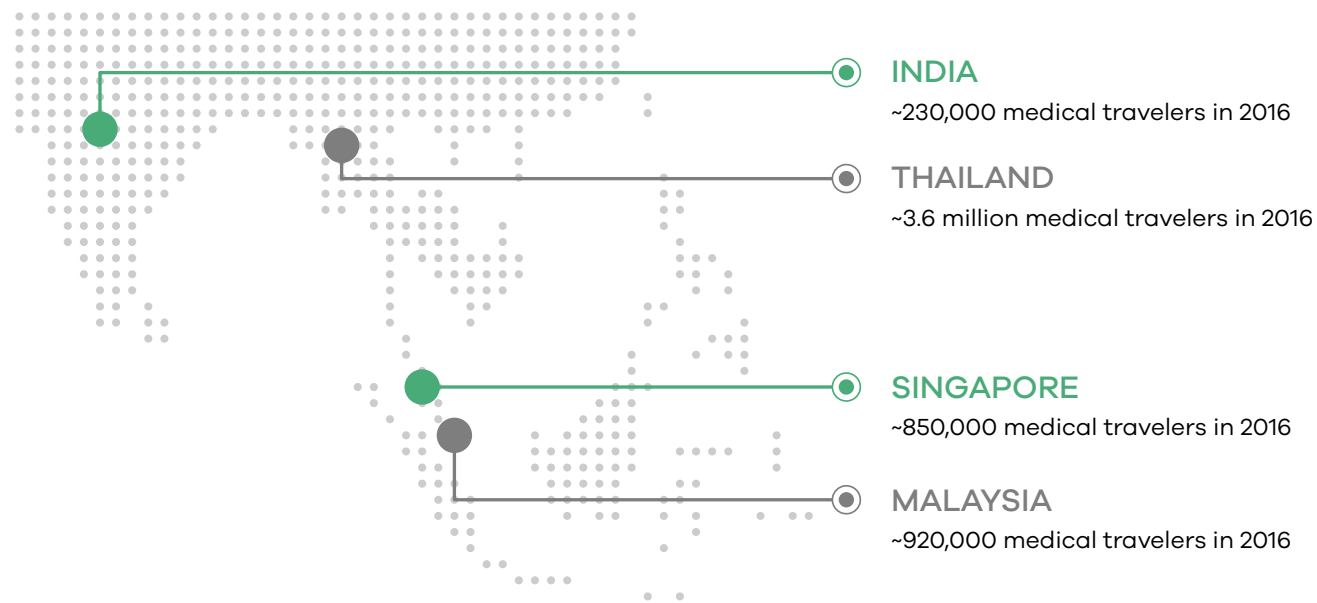
Healthcare outcomes and treatment pathways vary markedly across and even within countries despite government efforts for adoption of local and international standards.

Distribution of healthcare infrastructure and human resources continues to be uneven, impacting the quality and accessibility to care in rural areas.

Quality and efficiency of care delivery needs improvement as medical errors, and overuse, contributes to increasing burden on existing infrastructure.

A shift in mindset from price competition to value differentiation further boosts medical tourism

One of the fastest growing regions in medical tourism, Asia welcomed 7 million+ medical tourists in 2016



Diagnostics services will create new revenue streams for healthcare providers

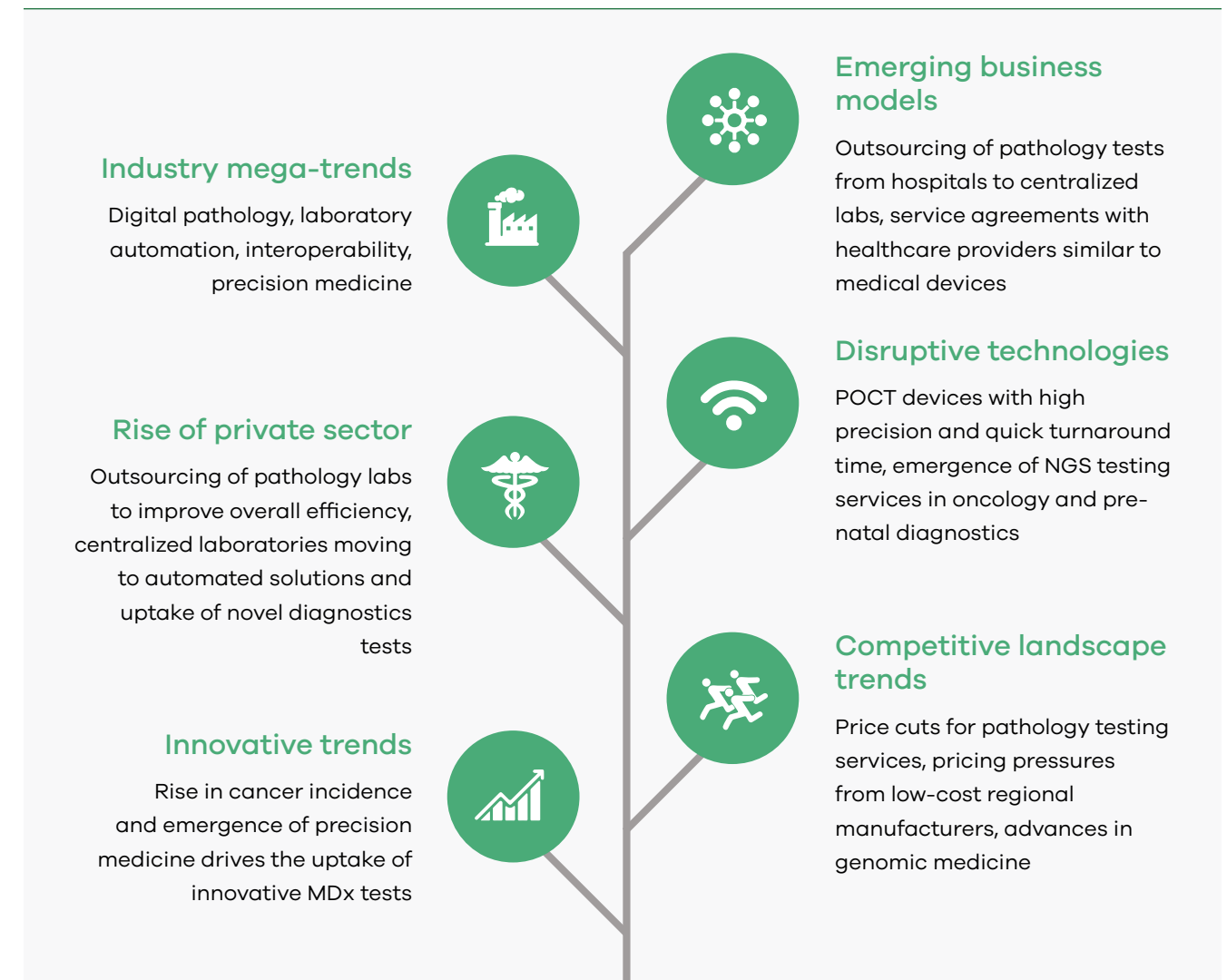
A boost in the expansion of private healthcare sector and quest for quality healthcare will drive the growth of the IVD diagnostic industry across Asia

Growing at a phenomenal pace, with revenues of In-Vitro Diagnostics (IVD) market expected to reach US\$20.6 billion by 2022, the IVD market in Asia offers

lucrative growth opportunities to Asian diagnostics market players.

Molecular diagnostics and POCT are lucrative segments in Asia, where growth is predominantly driven by the adoption of technology platforms.

Emerging technologies in the IVD market, such as liquid biopsy, next-generation sequencing (NGS), microfluidics, and multiplex molecular diagnosis are entering Asia due to the growth potential in the region.



Quadria Case Study

Lablink: Leading hospital laboratory chain in Malaysia

Lablink is a subsidiary of Malaysia's leading private healthcare provider, KPJ Healthcare Berhad. Headquartered in Kuala Lumpur with over 400 service staff, Lablink offers high quality comprehensive diagnostic services through its operational central laboratory and also manages the hospital laboratories for the KPJ Group.



In line with its commitment to elevate clinical standards in Malaysia, Lablink operates international standard laboratory facilities across the country. Notably, Lablink Central is the first private laboratory in Malaysia to comply with the Bio-Safety Level 3 (BSL3) Laboratory for testing of highly infectious diseases. The company is currently accorded the DIN

EN ISO 9002 and is working toward attaining the MS ISO 15189 Medical Laboratory Accreditation this year.

Quadria's investment in Lablink will enable the company to capture opportunities beyond its existing business, including entering new revenue segments in Malaysia and expanding to other key markets in the region through a combination of organic and inorganic strategies. The partnership will focus on leveraging Quadria's network of operating partners to enhance clinical offerings, optimize operational efficiencies and expedite inorganic growth initiatives.

Key highlights

26 Labs

(1 central lab + 25 in-hospital labs)

Over

14 million

tests run annually

Over

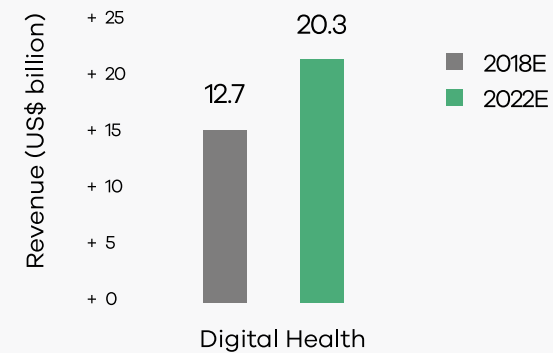
400

full time employees

Asia is adopting progressive analytics applications in hospitals

Growth opportunities in digital health across Asia

Total digital health market: Revenue and forecast, Asia, 2018-2022E



Digital health over-arches all the transformations impacting healthcare across countries today, and Asia represents the most dynamic and fastest-growing global market. Challenges such as the need to improve care access and quality, especially for the elderly, efficiency enhancements in current workflows, tightening of regulatory compliance and data collection, and optimization of human and infrastructure resources are the key drivers for technology adoption. Simultaneously, developing new markets, including medical tourism, requires governments and providers to invest in digital systems.

Digital health playing key role

The partnership between telecommunication providers and healthcare institutes in Asia is engendering major benefits and invigorating the healthcare industry

mHealth and wearables

Consumer penetration of mHealth apps and wearables will increase significantly mainly because of the convenience they offer. Market will, however, be price sensitive

Shared services - a focus area

Synergistic effects in lowering healthcare expenditure will make telemedicine outsourcing and shared services grow in popularity in Asia

Emergence of virtual clinics and doctors

Growing popularity of virtual doctors and clinics in Asia saves patient time and provides convenient access to doctor of their choice regardless of location

Quadria Case Study

FV Hospital: Putting science to inspiration, turning vision into reality

The story

Born out of the visionary aspirations of a group of 10 founders to provide world-class healthcare in Vietnam, FV Hospital is a powerful example of what happens when the right mix of inspiration and execution come together. Since inception, the hospital's mission has been to bring high-quality healthcare into Vietnam and its neighboring countries of Cambodia, Laos and Myanmar. Quadria's investment will bring FV Hospital closer to realizing its vision of developing an integrated regional network of multi-specialty healthcare facilities that span primary to quaternary care.

The vision

To transform FV Hospital into a leading healthcare group in Vietnam, comprising a multi-disciplinary tertiary care hospital supported by a clinic network covering South and South Central Vietnam.



The impact

Quadria's investment in FV Hospital has enabled the group to achieve significant progress in enhancing its key offerings in cardiology and oncology. The company is also looking to extend its other existing specialties of joint surgery, ENT, ophthalmology and pediatrics as Centers of Excellence.

FV Hospital plans to build a hub-and-spoke model that covers South and Central Vietnam via a network of clinics located in neighboring regions outside Ho Chi Minh City. The clinics will link into FV Hospital's existing facility which will serve as the hub hospital.

The only Joint Commission International accredited hospital in South Vietnam, FV Hospital was founded by Jean-Marcel Guillon in 2003.

The 220-bed hospital in district 7 of Ho Chi Minh City has more than 950 service staff, including 130 Vietnamese and expatriate doctors and also operates an outpatient clinic at the heart of district 1, the city's traditional business district. In addition to catering to the local population, FV Hospital also receives patients from neighboring Cambodia, Laos, and Myanmar.

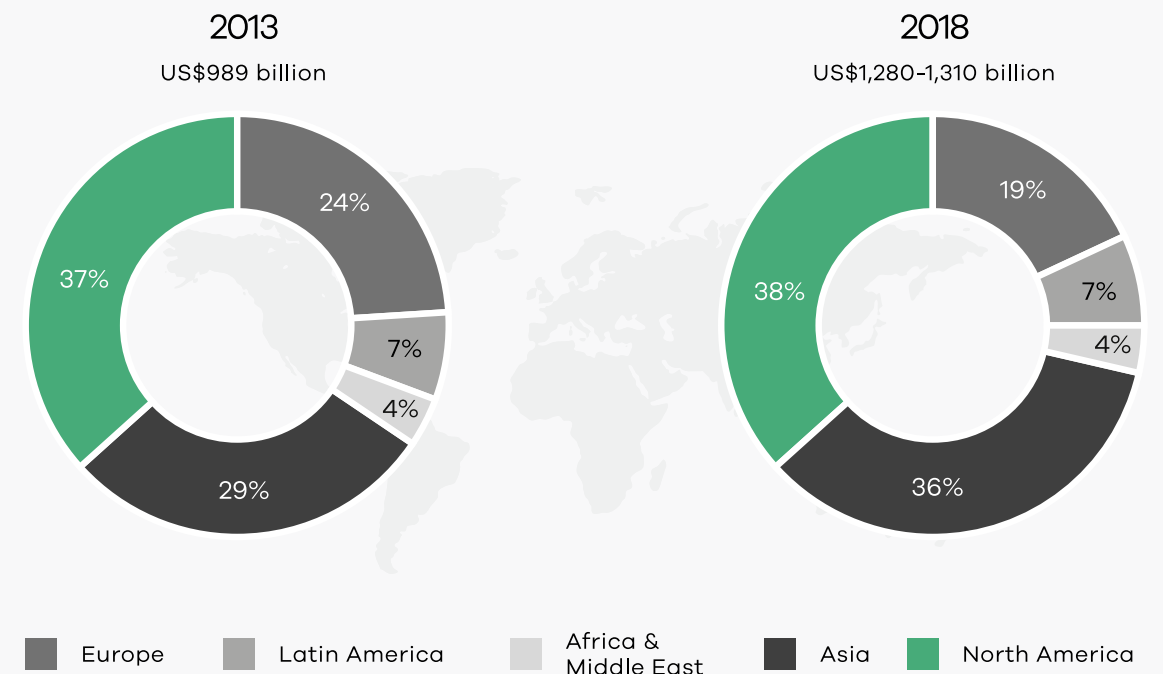
Life sciences and pharmaceuticals Emerging Asian pharmaceutical markets are poised for solid growth

Pharmaceutical sector is rapidly growing in Asia

Asia has been regarded as the "promised land" of the pharmaceutical industry. This sub-sector accounts for approximately 35% of total Asian healthcare spend.

With huge populations, increasing prosperity, and improving longevity, Asian markets are very attractive to pharmaceutical companies suffering from the inertia of mature markets, patent expirations, and increased regulatory hurdles.

Geographic distribution of medicine spending – Asia is gaining percentage share



Transformations in disease treatment paving way for specialty drugs

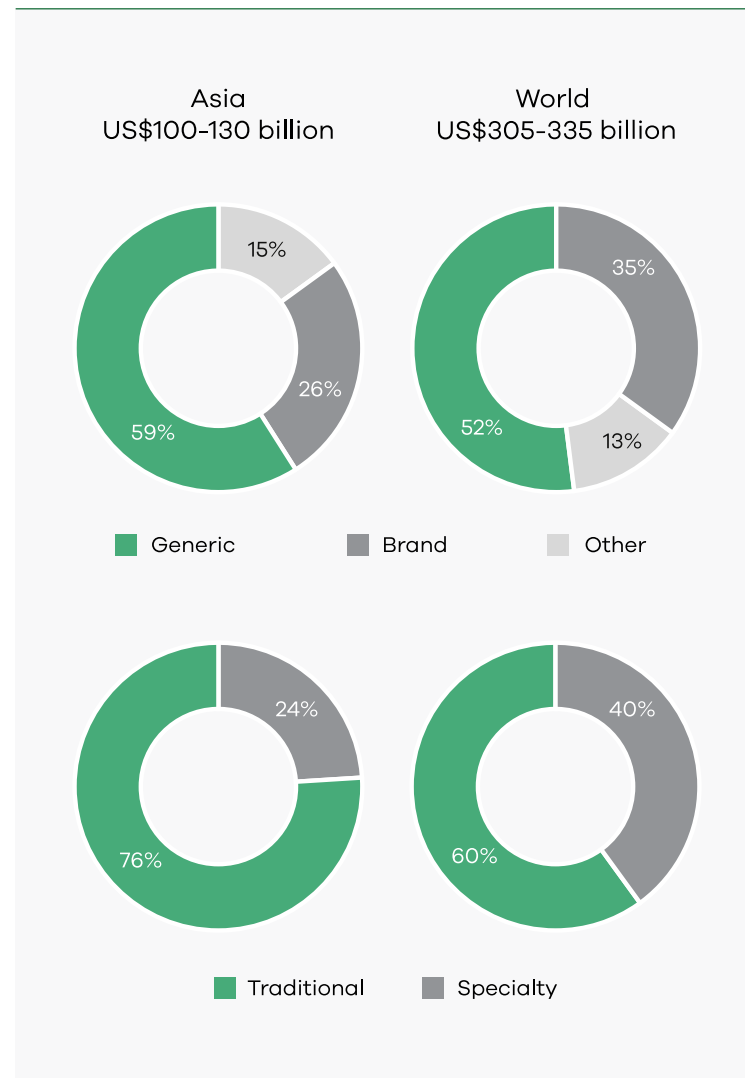
Low cost generics continue to grow



Increase in low-cost generics will continue to be seen in Asia, as efforts to broaden access to basic health insurance are pursued



Specialty drugs in Asia will grow reflecting increased availability in the region



Top trends of open innovation approach stimulating health of Asia's pharmaceutical market

Shift to specialty medicine

Focus of Industry is shifting to specialty medicine

- Focus of industry shifting toward investment in specialty medicine owing to patent expiration and increased usage of traditional generic drugs
- The pipeline of innovative specialty drugs is also robust, especially in the area of oncology

Rapid adoption of biosimilars

Despite a slow start, biosimilars have massive opportunity in Asia

- Asia to position itself as the center for global biosimilars manufacturing and adoption; more than 300 biosimilars under development
- Streamlining of regulatory guidelines and high adoption rate for biosimilars among physicians, payers, and patients is driving growth

Growing stem cell therapy market

Asia to dominate stem global cell market

- Rising neurological and other chronic conditions, contract research outsourcing, commercialization supported by favorable government policies, strong pipeline, and increased licensing activity drive the Asian stem cells market

Push for regenerative medicine

Asia is predicted to be the fastest growing region for regenerative medicine

- China and Japan major stakeholders in the regenerative medicines market, jointly account for almost two-thirds of the Asian market
- Health and science ministries have approved use of embryonic stem (ES) cells for medical treatment in Japan

Rise of personalized medicine

Waves of personalized medicine are bathing the shores of Asia

- Personalized medicine is changing the way medicine is practiced, especially for cancer; other therapeutic areas, such as infectious diseases, will follow suit

Digital transformation In the pharmaceutical industry

The dynamics are ripe for digital healthcare solutions

- Digital transformation to extend across the pharmaceutical value chain: R&D, manufacturing, supply chain management, sales, marketing, and patient care



Pharmaceuticals get a healthy dose of M&A as the market grows

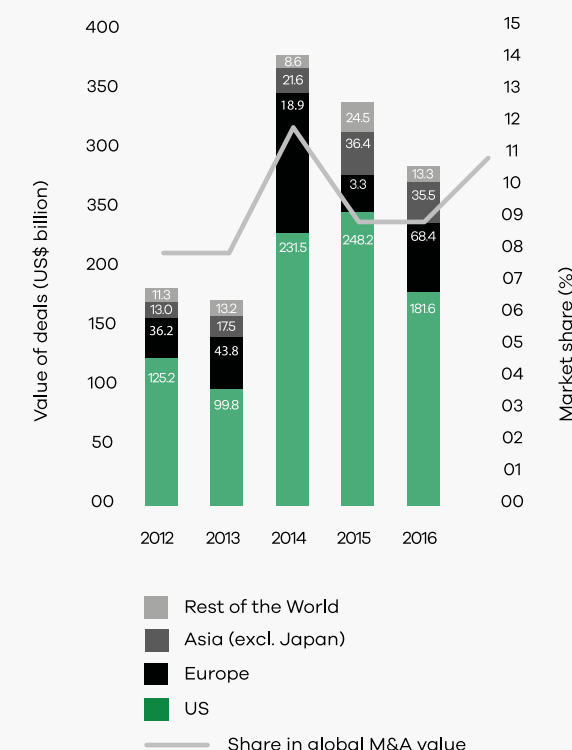
Healthcare mergers and acquisitions (M&A) in Asia are expected to jump by 80% to US\$55.1 billion in 2018, driven largely by big pharmaceutical companies occupying manufacturing sites in more affordable markets. M&A activity is particularly high in the pharmaceutical sector, as companies attempt to lessen potential near-term gaps in revenue — from the loss of patent protection on key drugs — by diversifying their portfolios.

Big pharmaceutical companies are now looking for growth in Asia's developing markets with an objective to replenish the drug development pipeline, gain access to new molecules or to expand markets of established products. Potential new entrants with a technology focus, as well as combinations among incumbents creating ever-larger competitors, are likely to drive continued activity as companies seek to retain or enhance their competitive positions. This drives pharmaceutical companies to chase smaller biotech start-ups that have many products in regulatory review.



Big pharmaceutical companies looking for growth in Asia's developing markets

Regional breakdown trend 2012-2016

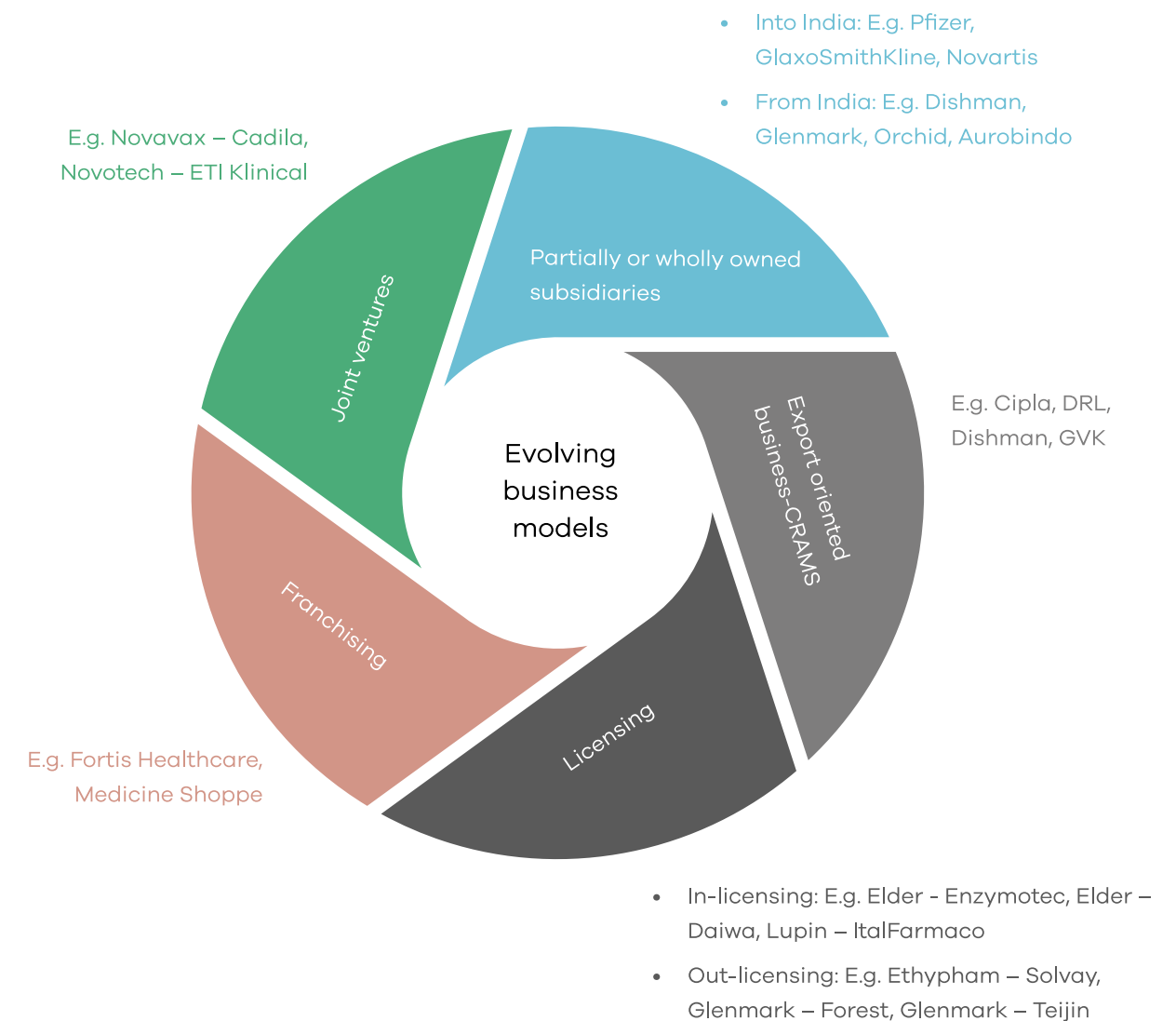


India likely to be in top 3 global pharmaceutical majors by 2020



Global pharmaceutical's evolving business models and options in India

Global pharmaceutical players can benefit from a variety of options to maximize their investment in India. As many pharmaceutical companies turn to two-way business models, Indian companies are likely to play an increasingly important partnering role. Options range across a wide spectrum of ownership and control; from straightforward outsourcing of manufacturing to licensing arrangements to more involved joint ventures and partially or wholly-owned subsidiaries.



Quadria Case Study

SOHO Global Health: Catalyzing growth in the world's 4th largest population

SOHO Global Health (SGH) is ranked as the 4th largest pharmaceutical company in Indonesia. Its portfolio includes generics, natural medicines, medical equipment / devices and consumer products. SGH also owns and operates Indonesia's 4th largest pharmaceutical distributor, Parit Padang Global (PPG). In terms of OTC, it is the 13th largest pharmaceutical company in Southeast Asia.

Vision - To build SOHO into a leading integrated pharmaceutical products and healthcare distribution company.

With Quadria's support, SOHO continues to drive ESG initiatives and systems implementations for better environmental and social governance of its operational activities. Quadria continues to provide strategic advice in SOHO's pursuit of in-licensing and acquisition opportunities with trusted partners to achieve leadership in the antiviral, respiratory, cardio-metabolic, CNS and oncology product segments.

Impact - Quadria's efforts have resulted in a stellar revenue growth record, a solid portfolio of market leading products and a healthy R&D pipeline. With working capital gains from cash cycle improvements, Quadria will continue to pursue promising development opportunities that have been identified to catalyze growth and further strengthen SOHO's potential.

SGH has built 7 brands with annual sales in excess of US\$3 million each

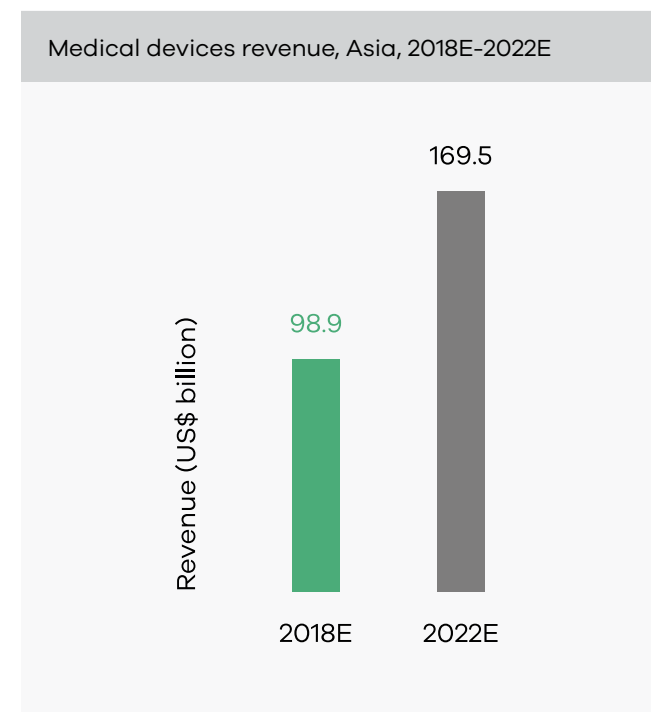
1. Imboost
2. Curcuma Plus
3. Fitkom
4. Diapet
5. Curcuma Group
6. Asthin
7. Curvit






Medical equipment, devices and consumables Asia is leveraging the cost advantage for innovation and expansion

The emergence of private healthcare facilities in Asia has created a new revenue stream for the medical devices market. As new opportunities open up in Asia, multinational investors are looking to set up medical manufacturing plants to cater to the rising demand.




“
The Asian medical devices market is projected to grow at a CAGR of 14.4% from 2018 to 2022 to reach US\$169.5 billion



Key drivers of the medical devices industry in Asia

-  Easy access to quality workforce
-  Low manufacturing cost
-  Increasing private healthcare infrastructure
-  Uncomplicated registration process
-  Technological innovations

Key Asian countries to watch

| | | |
|--|--|--|
|  |  |  |
| <p>China</p> <ul style="list-style-type: none"> One of the fastest growing market sectors in China, valued at US\$53.62 billion in 2016 grew 20.1% compared to 2015 Exports of medical devices from China stood at US\$38.91 billion in 2016; set to touch US\$39.39 billion in 2017 Initiatives like “Made in China 2025” and 13th Five-Year Plan are enhancing prospects | <p>India</p> <ul style="list-style-type: none"> Government measures like ‘Make in India’ to promote the research, development, manufacture, and import of medical device are seeding potential opportunities in the sector Ministry of Health and Family Welfare released Medical Device Rules, 2017, further streamlining the industry ecosystem, standards and regulation | <p>Malaysia</p> <ul style="list-style-type: none"> Medical devices exports grew by 12% in 2017; exporting more than 50% of the total medical devices to China, Japan, and other Asia Pacific nations With over 200 medical device companies, the Government of Malaysia has designated the Medical Device sector as high growth potential in the 11th Malaysian Economic Plan (2016-2020) |

Fast pace of discovery and innovation in medical devices sector of Asia reflects anticipated growth

The unique confluence of emerging technologies and investment trends coupled with low manufacturing cost, adoption of popular digital health technology solutions such as Artificial Intelligence (AI), Internet

of Medical Things (IoMT), Big Data analytics, and robotics across select healthcare segments are making way for Asian medical device industry.

 **Growing Digital Radiography (DR)**


Higher disposable income, expansion of private hospital chains, and increasing standalone diagnostic centers are leading to DR growth though CR (Computed Radiography) is expected to remain a technology of choice for small healthcare facilities in many Asian countries.

Retrofit systems in small-sized hospitals are expected to drive growth for the next 2-3 years.

 **Value based imaging**

Market changes from traditional ‘Fee for service’ to value based healthcare continues to have an impact and disruption globally and in Asia as governments and health plans push for transition to outcome or value-based payment models.

Asian countries like Japan and Singapore have also made significant progress and are expected to be high on the alignment with value based healthcare.

 **3D medical printing**

With 3D printing revolutionizing the manufacturing of medical devices and implants, Asian countries are predicted to have a very high potential for 3D printing owing to the large population base

 **Managed Equipment Services (MES)**

Asia is also witnessing increasing adoption of MES due to factors like need for sustainable service, maintenance and upgrade of equipment, and ease of capital planning.

ClearMedi has established several MES partnerships with hospitals in India for advanced imaging services.

Increase in awareness and changes in lifestyle are Asia-tipping the scales on health and wellness

Associated healthcare sector includes varied centers and services such as weight loss centers, psychiatry clinics, home healthcare, mental wellness, nutrition clinics and corporate wellness. Growth in this sector is largely driven by high-end medical spending not covered under standard healthcare service and insurance packages. Uniquely positioned to benefit from a large population base, rising chronic diseases, medical tourists seeking cost effective therapies, the sector is set for growth.

With mental disorders on the rise, Asia is edging toward one-fifth of the global mental health burden calling for action from awareness creation to treatment. This opens avenues for investments in Mental Wellness.

Home Healthcare in Asia is poised to expand following unmet medical needs, aging populations and frugal innovations in home monitoring technologies. The evolution of such models holds promise of significantly improving quality of care and outcomes achieved while controlling costs.



Welcoming healthcare to home Providing customized services, leveraging well established technologies is one of the most defining aspects of home healthcare

New and innovative technologies are widening the sea of opportunities in the Asian home healthcare segment

| Sensors

| Smart phones

Remote patient monitoring/mHealth

Remote monitoring lies at the interface of sensor technology and smart phone.

| Smart Sensors

| Wearable Devices

Enable the development of personal health monitors that can continuously monitor vital signs. These could also be applied in ambulances and other areas of care.

| Wireless Sensors

Contact-free vital signs monitoring

Wireless sensors have opportunities in the area of touch-less vital signs monitoring for newborns and patients with a propensity to be uncooperative during monitoring. This will also be a foundational technology platform in future hospitals and care centers.

| Sensors

| BioNEMS, nanofluidics

POC diagnostic kits

Advances in enabling platforms like nanofluidics and bio-nan-electro mechanical systems (BioNEMS) opens avenues for high throughput diagnosis, portable and miniature diagnostic kits.

Increase in awareness and changes in lifestyle are gearing up the next level of growth in associated healthcare market

Mental health

Mental illness is the second largest contributor to years lost due to disability (YLDs) in Asia. It will emerge as a key area of focus with a potential patient base of over 344 million in 2018

Mental and substance use disorders are expected to overtake communicable disease disability-associated burden in the next couple of decades.

Weight loss and diet management

A transition in nutrition happening in Asia

Overweight and obesity issue is on the rise in Asia. Malaysia, Singapore, South Korea, and China, among others witnessed a sharp increase in obesity and other weight-related diseases. There is also a rise in the dietary supplements market - consumer awareness about the benefits of dietary supplements and easy access to products are the major market drivers in this region. Also, Asia is projected to register higher growth in global smoking cessation and nicotine de-addiction products market through 2025.

Depression drug market

Asia is heading toward a depression crisis

The global depression drug market was valued at US\$14.5 billion in 2014 and is expected to generate revenue of US\$16.8 billion by end of 2020, growing at a CAGR of 2.5% between 2015 and 2020. Asia would contribute 20% i.e. US\$3.36 billion by 2020, attributing to growing geriatric population, increasing stress levels and drug abuse.

Oral health

Rising trend in oral health and cosmetic dentistry is a major contributor to this market

Growth is attributed to rising disposable incomes of the middle-class population, growing consumer awareness about oral health, and rising focus on cosmetic dentistry. Also, growing number of dental colleges and hospitals in Asia is likely to impact market growth.



Healthy growth anticipated in health insurance

In 2018, over 2 million new people are slated to buy private insurance across the region

High medical costs coupled with low penetration rates of public insurance open up an opportunity for private insurance companies. In addition, longer lives have produced a new segment of aging consumers in search of new insurance solutions.

Quadria Case Study

HealthCare atHOME (HCAH): Provides acute and chronic clinical care and pharmaceutical delivery services to patients in their homes

The company has an established presence across 20 cities in India and does over 100,000 home visits per year. HCAH's competitive edge lies in its focus on high-skill services such as ICU at Home and outcome-driven pharmaceutical services that yield quantifiable returns for pharmaceutical companies.



Home-based patients are assured of consistent and high-quality services at 40%-50% lower cost compared to hospitals



With Quadria's support, HCAH has established an exclusive tie-up with Critinext, India's leading e-ICU platform, which manages over 500 ICU beds remotely across India, Bangladesh and Nepal.

Over
2,000
patients served monthly

Operates over
25
high-end drug infusion pharmaceutical projects



Today, HCAH serves over 2,000 patients for acute care services on a monthly basis and operates over 25 high-end drug infusion and drug administration projects for pharmaceutical companies.

As part of Quadria's value creation plan, HCAH has identified a number of key focus areas to drive greater growth in the business. These include expanding the company's geographical reach and consolidating its leadership in niche high-end acute care services.

Quadria is also helping to position HCAH as the preferred service provider for all stakeholders in communities where HCAH operates, namely patients, hospitals, insurance providers, and physicians.



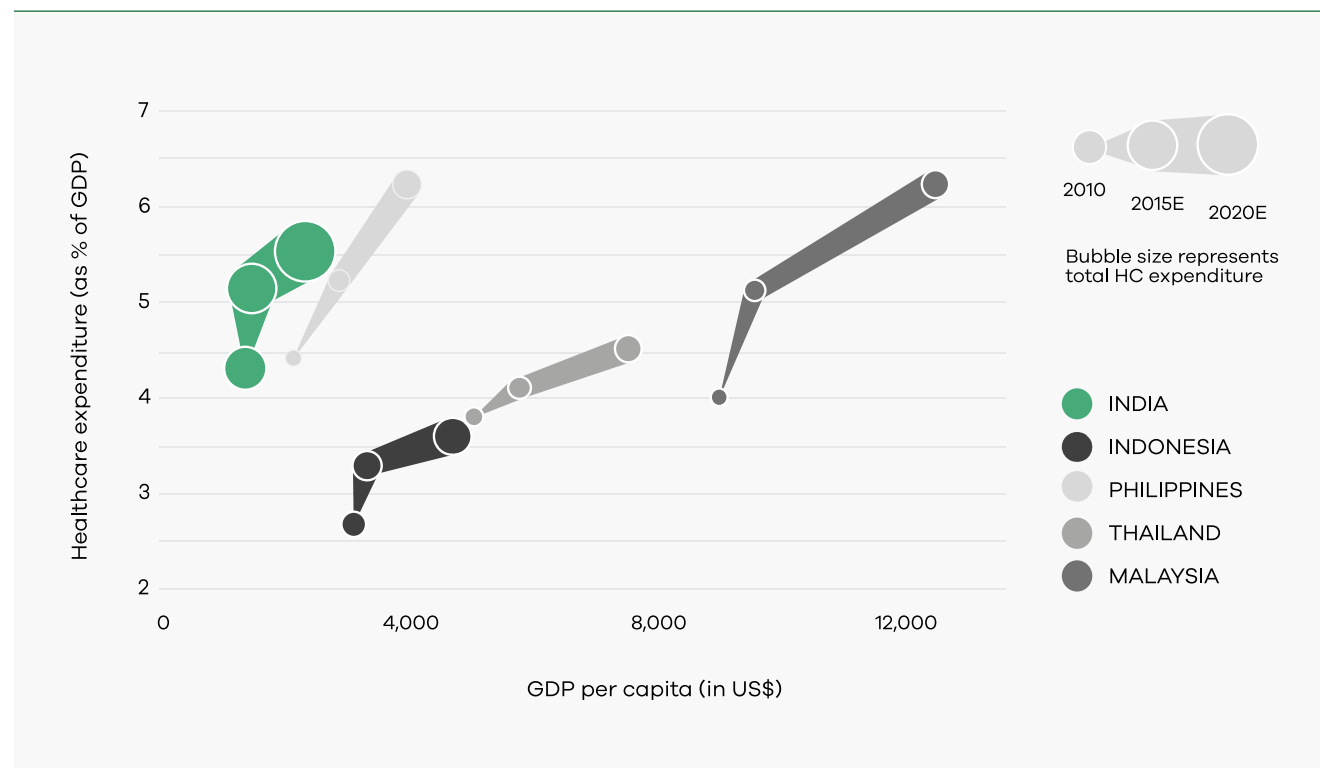


Capturing
Opportunities
Amidst Great
Change

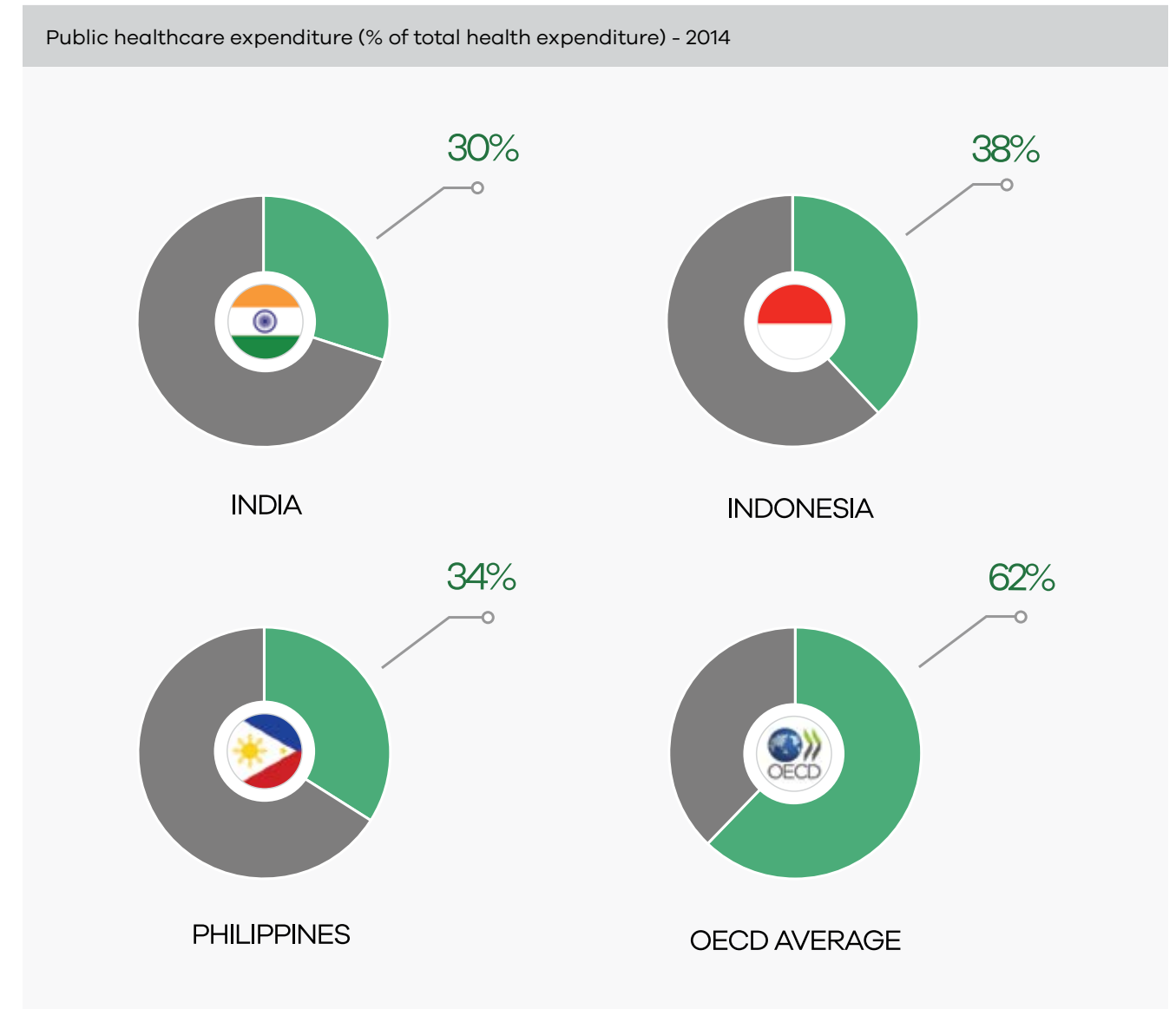
Despite the rapidly evolving Asian economy and increasing healthcare spend, gaps in the sector persist

Healthcare spend in the region is growing, driven primarily by rising levels of income.

Asia's healthcare expenditure is about 4% of GDP as compared to 9% in OECD countries. Governments have been frugal on healthcare expenditure, disproportionate to the large population base and growing demand of healthcare.



Historical under-spend on healthcare by public sector



With sub-optimal spend by governments, private players are well-positioned to leverage this opportunity.

The discontent due to gaps in the services and standards of public hospitals has shifted the patient workload in Asia to private hospitals.

The private sector will lead the way by implementing innovative business models focused on cost efficiencies, easy scalability, high quality standards, and improving operating metrics. Further, governments across Asia are also focusing on collaborative ways like Public Private Partnership (PPP) to bridge the gaps in healthcare delivery.

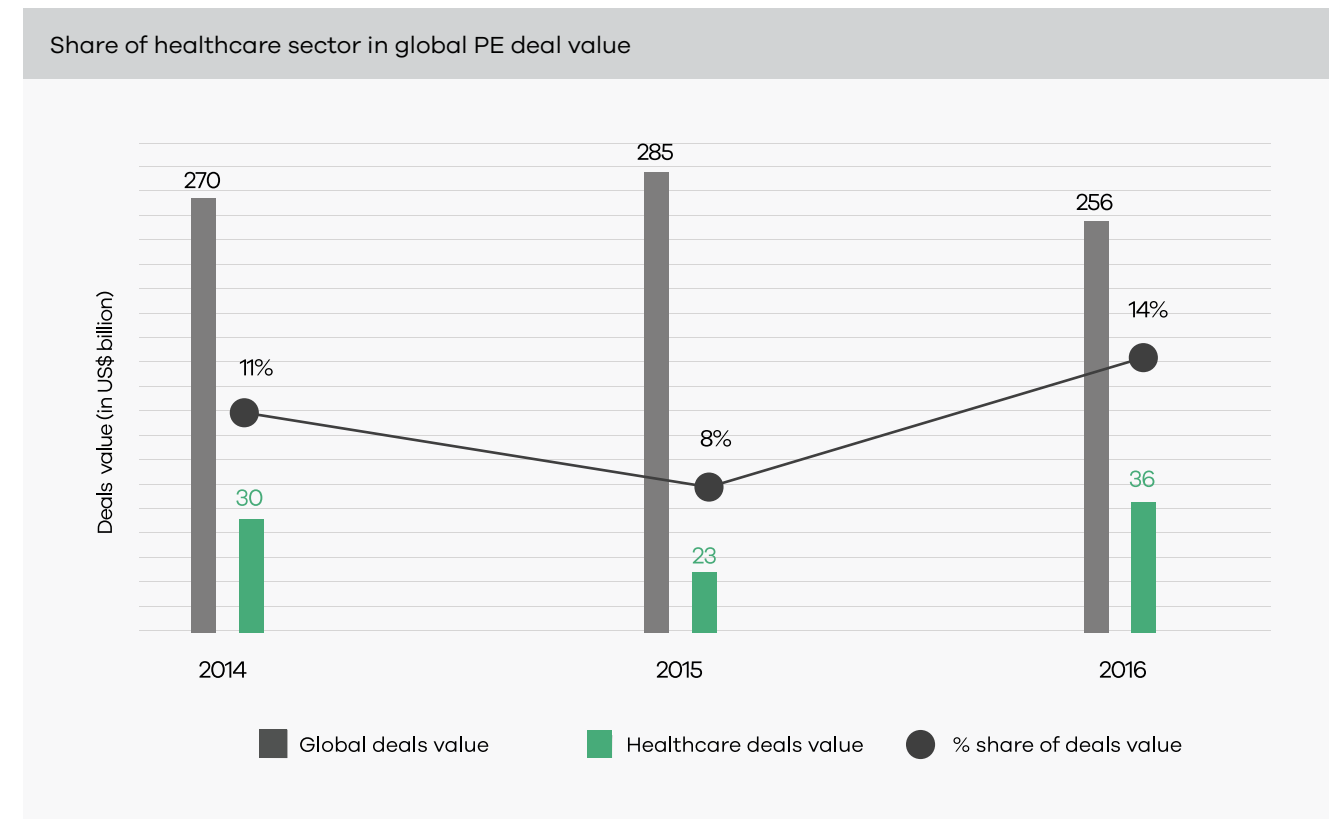
Private equity funding is catalyzing the next wave of growth in Asia

Global surge in healthcare PE investment

Global healthcare private equity surged to US\$36.4 billion in 2016, marking a nearly 60% increase from the total of US\$23.1 billion in 2015, as investors looked to the industry as a safe haven. Taking notice of the sector's resilience and factors driving on the opportunities, investors are set to capitalize potential of the healthcare sector.



In sharp contrast to the overall decline in PE deal making, global healthcare PE activity soared

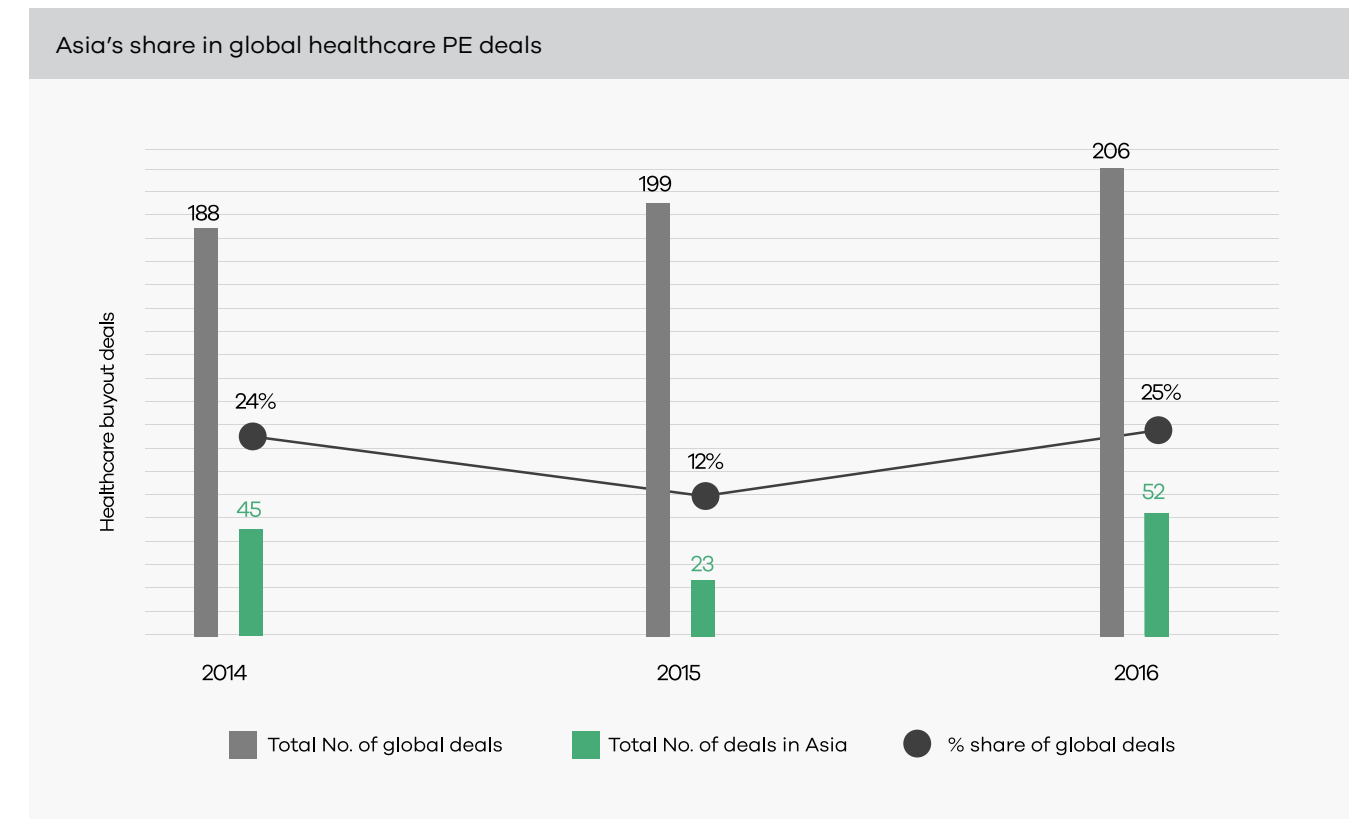


Investment in Asian healthcare driving global deal flow

Exhibiting solid fundamentals, Asia continues to be deal making hotspot for PE investors, with healthcare being a winning proposition. With rising interest of PE investors and intense competition, PE investors in Asia are reaching across international borders and focusing on assets with strong positions.



Healthcare buyout deals volumes in Asia doubled between 2015 and 2016



Healthcare providers in Asia have seen a surge in investments

As the sector becomes more reliable and sustainable for private investors, deal activity in hospitals and clinics features most prominently in ophthalmology, dental and primary care. Clocking 31 deals in 2016, the provider segment in Asia grew 3 folds between 2015 and 2016.

Specialist healthcare funds focused on pharmaceutical, biotechnology or medical devices, are generating impressive returns and seeing growing interest from fund managers.



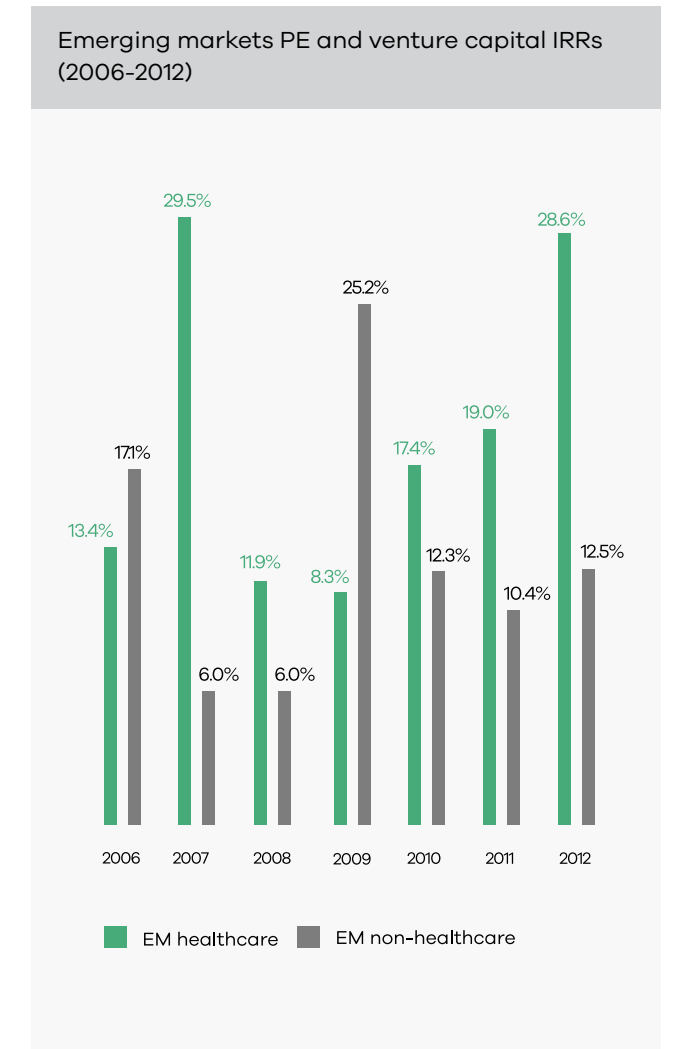
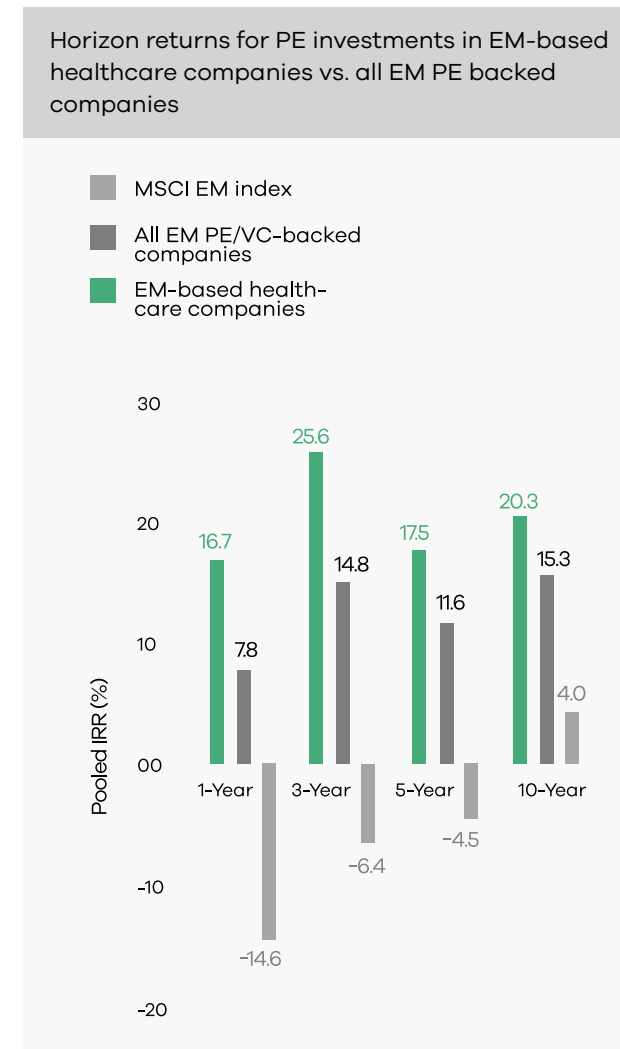
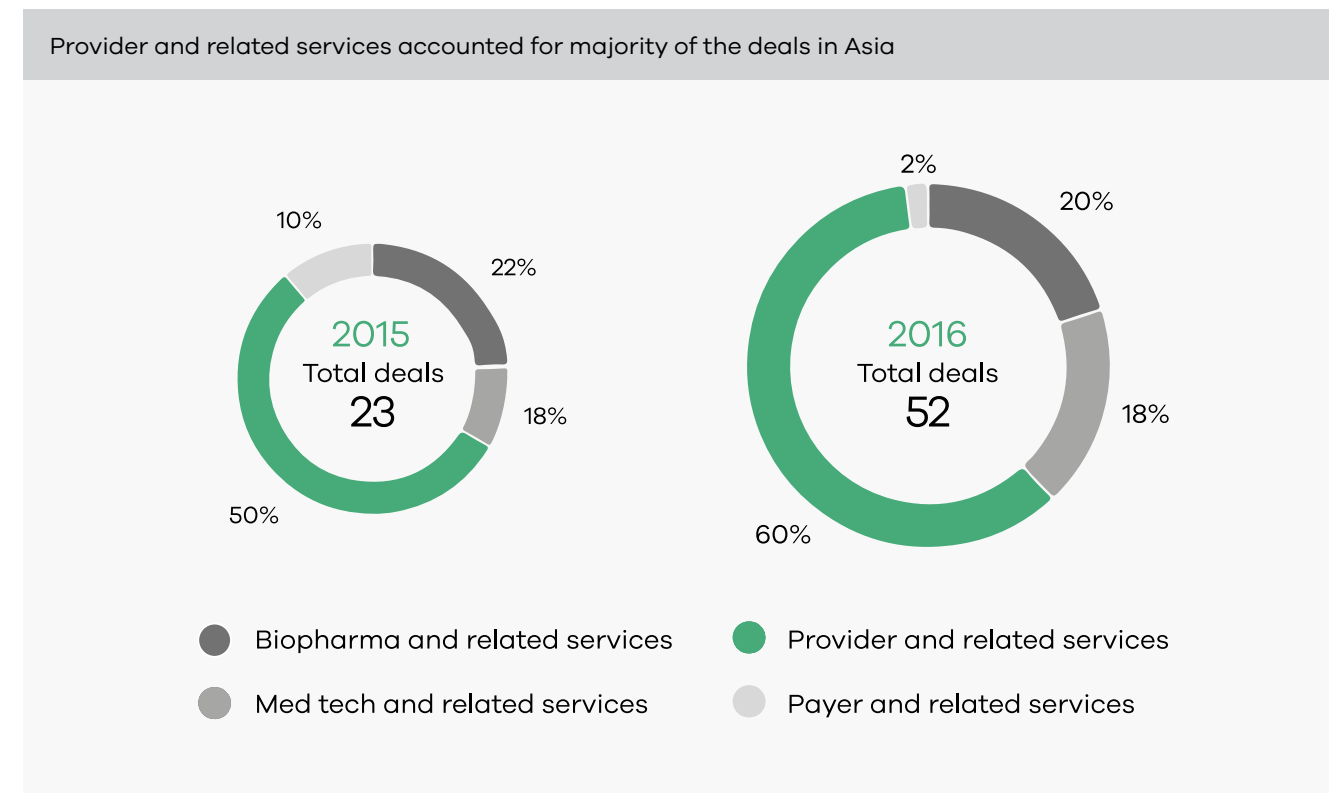
Asia offers access to a rich diversity of mature and sophisticated healthcare sub-sectors, such as biotechnology and pharmaceuticals

Strong returns in Asian healthcare to drive future investments

Asia boasts of one of the most mature and largest PE Industry landscapes in healthcare sector, demonstrated by liquidity in the sector, better exit opportunities, and increasing secondary sales, providing investors with opportunities for out sized returns.

For investors seeking exposure to healthcare in Asian markets, private equity is a well-suited strategy through which returns can be accessed and reaped.

Investments in the healthcare sector have beaten returns for Emerging markets private equity.

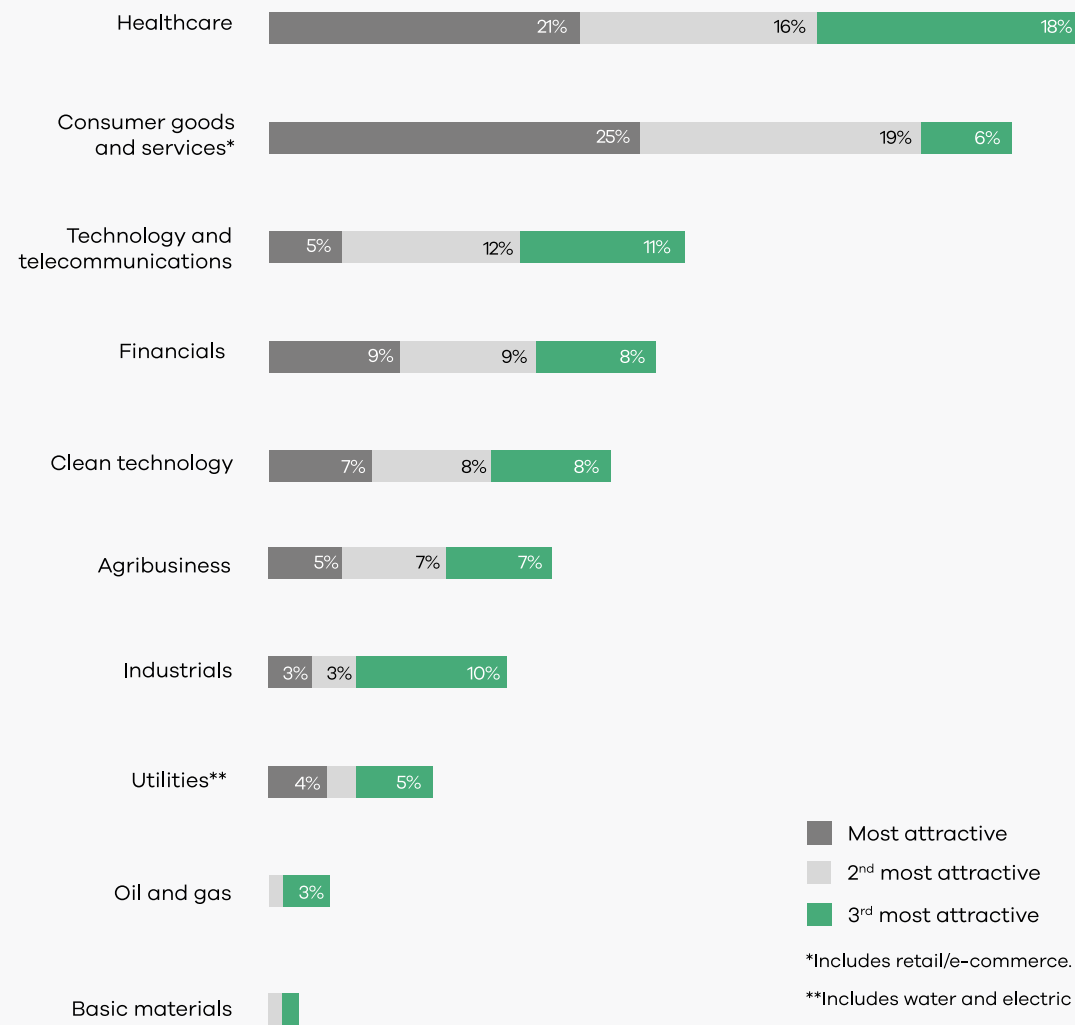


The growing demand of healthcare and consumer needs outstripping the capacity of public sector is creating value for investors in private equity, keen to increase their exposure to healthcare in emerging markets. Investor interest also stems from its strong fundamentals, consistent growth, persistence and lack of volatility, rising middle class population, and increased awareness among governments to provide better healthcare solutions.



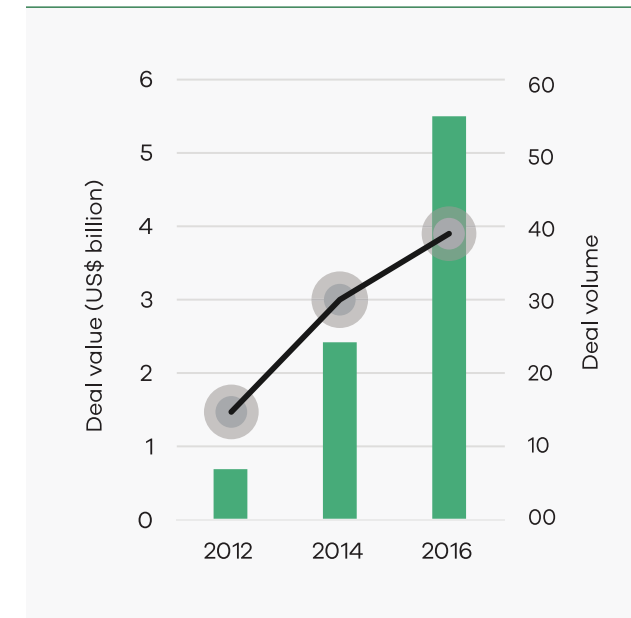
In the 2016 Global Limited Partners Survey, respondents ranked health care among the most attractive sectors in which to gain exposure via emerging markets private equity

Most attractive sectors in which to build exposure via EM PE



Robust equity markets are attracting global investors

Asia has emerged as the most active region for Healthcare IPO listings with sentiments of investors being more optimistic for India and China.



In 2016, Asia accounted for 25% of global healthcare IPOs, raising US\$5.5 billion.

Despite the noticeable change in the number of deals, Asian IPO activity performed commendably in terms of capital raised accounting to nearly 38% of the total capital raised since 2012.

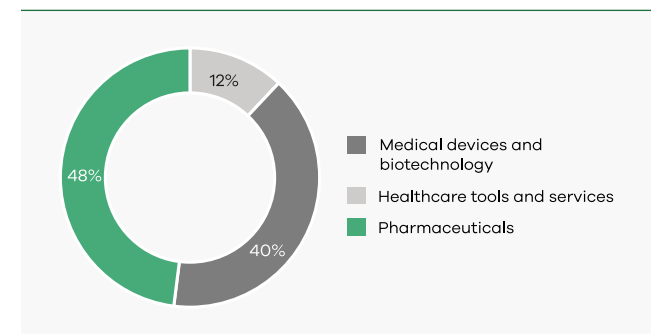


Going Further

- | M&A activities will further boost healthcare IPO market
- | Mainland China and India to lead the way
- | Pharmaceuticals, healthcare services and tools will attract investment with the increasing demand
- | Increased influx of capital will enable quick expansion across geographies and sectors
- | Ongoing regulatory reforms are creating financial and operational discipline, hence investors' ease and more opportunities



Pharmaceutical segment contributed nearly 48% to the total capital raised





Harnessing the
Power for Social
Change

Driving meaningful impact via healthcare investments

Quadria is proud to invest in businesses that are working to address the pressing healthcare issues of access and affordability of quality care in the region. Quadria Capital believes that responsible investment

is critical to long term, sustainable value creation in the region, and that its goals of both "doing good" and "doing well" are not just compatible, but in fact mutually reinforcing.

| Access | Affordability | Awareness | Quality |
|--|---|---|---|
| <p>0.5 beds / 1,000 people vs. 5 beds recommended by WHO</p> <p>0.3 doctors / 1000 people vs. 4 in developed markets</p> | <p>90% healthcare paid out of pocket</p> <p>Over 2.6 bn people live below \$3 per day</p> <p>Healthcare cost key reason for personal bankruptcy</p> | <p>About 70% of Asia's population lives in rural areas</p> <p>In Indonesia, over 60% of diabetics undiagnosed</p> | <p>Diverse and fragmented private sector results in low quality</p> <p>Informal providers make up a major portion of healthcare in India, as high as 65% in certain states.</p> |

Enabling access to affordable, high quality healthcare to under served populations

As a healthcare-focused investor in a highly under-served region, Quadria aims to make a positive, transformational impact in its portfolio companies and local communities. By investing in highly scalable businesses, Quadria aims to achieve sustainable social impact by ultimately improving people's lives making the world's most innovative drugs accessible, and affordable, to those who are most vulnerable.

Almost three billion people such as these form the base of the economic pyramid in Asia. This large

segment of humanity not only faces significant and unmet medical needs but also lives in relative poverty.

Their incomes are less than \$3 a day and yet together they have substantial purchasing power: a US\$3 trillion consumer market. The businesses that serve the families above are some of the investments that Quadria Capital, has made.

Quadria businesses are making an enormous social impact on the sustained development of these communities. What is less obvious is that these investments have the power to generate superior returns for our investors.

Creating sustainable social impact on communities



Quadria is committed to create value while benefiting the greater good of regional development

Quadria Capital believes that its investment activities can steer the following community development initiatives in the region:

Better access to quality healthcare for the under-served

Quadria Capital works with high-caliber healthcare companies to expand operations in Tier II/III cities and increase access to affordable, high quality healthcare for those that need it the most.

Creation of jobs

Investment in regional healthcare companies supports their growth and creates sustainable employment in the community. A recent report from the Global Impact Investing Network shows that for organizations focusing on positive impact through healthcare, the average annual wage per employee is US\$9,717 (PPP), more than double the per capita income of US\$4,194 (PPP) in South and Southeast Asia.

Building higher quality companies that raise overall industry standards

Quadria Capital supports regional healthcare companies, in turn raising the standard of individual companies and increasing the degree of sophistication and efficiency of the industry.

Transfer management skills:

Local business managers "pollinate" the industry when they move to other firms.

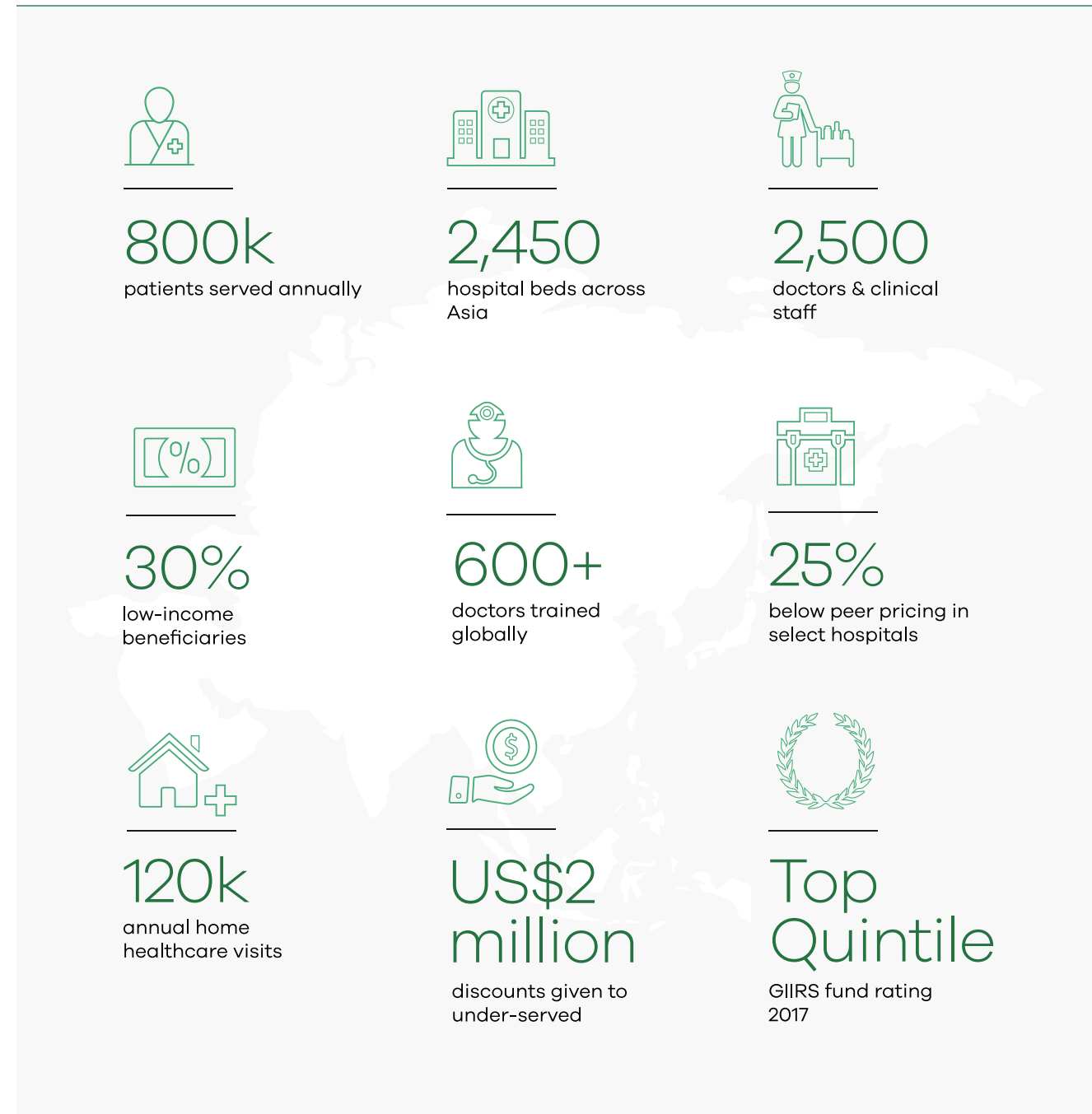
Financial diversification:

Equity investments diversify financing sources available to regional healthcare companies. Equity capital further serves as collateral for bank loans and purchase of fixed assets. This helps medium-sized companies graduate to larger enterprises and eventually raise capital by listing on the stock exchange.

Contribution of indirect effects and externalities:

In addition to the direct contributions noted above, impact investment in Asian healthcare also makes several indirect, but important, contributions such as: (a) increased taxable revenues that governments can direct toward social services, infrastructure and environmental requirements; (b) investee companies often use locally sourced materials for production; (c) jobs created at investee companies contribute to employment and a stable, middle class, which in turn contributes to long-term economic progress for countries in the region.

Quadria Capital: Social impact in numbers



Quadria Case Study Asian Institute of Gastroenterology: Building access to high-quality affordable healthcare

One of the largest single location gastric sciences hospital

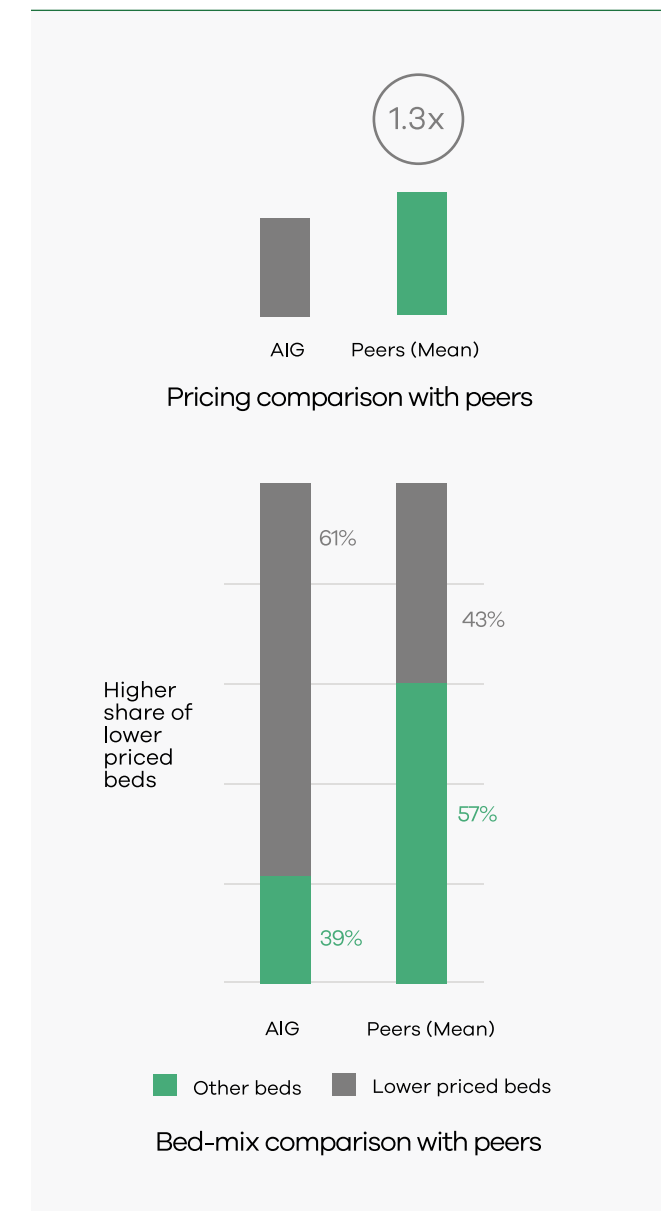
Located in Southern India, Asian Institute of Gastroenterology (AIG) is one of South Asia's leading referral centers for gastric sciences. 45% of its patient traffic comes from outside the province where it is located, with 5% coming from other countries in South and Southeast Asia.

AIG's business model is to provide world class healthcare to low and middle income patients at affordable prices. By driving scale efficiencies it reports over 40% EBITDA margin consistently, making it the perfect example of delivering outstanding social and financial returns.

It is among 14 centers recognized globally as a Center of Excellence by the World Gastroenterology Organization. To further consolidate its leadership position in gastric sciences, AIG is setting up a 700 bed hospital which will also offer super-specialty treatment in co-morbid specialties like oncology, cardiac sciences and renal sciences.

AIG actively contributes to R&D in advanced gastric sciences treatment via its state of art research center, which is credited with multiple publications and two international patents. Over 500 doctors from some of the leading healthcare institutions across the globe have been trained at AIG. To

increase awareness of and access to advanced clinical services, it operates mobile hospital units in remote villages of southern India, focusing on the underprivileged. It also allocates over US\$200,000 annually to CSR activities, aimed at benefiting the communities it serves. ology, cardiac sciences and renal sciences.





Delivering a
Consistent
Investment
Strategy

Quadria is one of the largest healthcare investors in Asia

One of the largest healthcare teams in Asian PE

Stable team with complimentary skillsets

Deep experience in healthcare operations

Specialized healthcare team of

17

professionals across 2 regional offices

Decade long experience of investing over

US\$ 1.1 billion

across 20 Asian companies

Dedicated Operating Partners to support investee companies' growth plans

Senior team members have worked together for over

10 years

Deployed and returned over

US\$ 1 billion

capital across business cycles

Complimentary skill sets in clinical services, operations and investment analytics

Over

230 years









of experience in healthcare operations, investment and strategy

Held clinical management and strategic board positions with global healthcare companies











Quadria has helped build 16 leading healthcare businesses in Asia

Healthcare Delivery

| | | | |
|---|---|---|---|
| <p>November 2009</p>  <p>One of the largest hospital groups in Southern India with over 1,600 beds</p> | <p>February 2010</p>  <p>Largest oncology hospital chain with 27 cancer centers across India & Africa</p> | <p>March 2010</p>  <p>SEA's largest network of healthcare facilities with over 4,000 beds regionally</p> | <p>October 2011</p>  <p>Leading mass market hospital chain in Vietnam operating over 700 beds</p> |
| <p>March 2011</p>  <p>Leading tertiary care, multi specialty hospital in Sri Lanka with over 270 doctors and over 1,000 employees</p> | <p>January 2014</p>  <p>Largest hospital group in Eastern India with 1,440 beds serving over 500 million catchment population</p> | <p>November 2015</p>  <p>Asia's leading referral center for gastric sciences with 1,000 bed capacity in India</p> | <p>July 2017</p>  <p>Leading JCI accredited hospital providing high quality care in South Vietnam</p> |

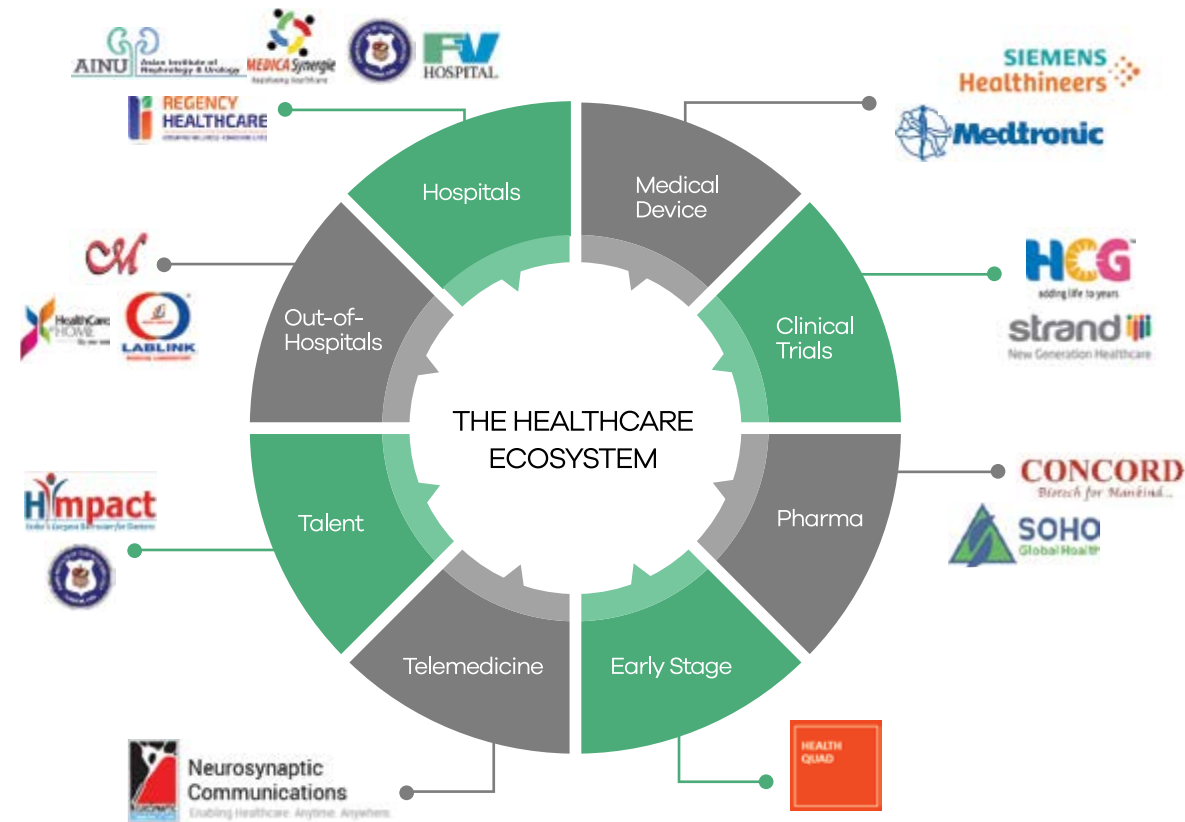
South Asia Southeast Asia Asia-Pacific

Life Sciences

| | | | |
|---|--|---|--|
| <p>March 2015</p>  <p>Indonesia's second largest integrated pharmaceutical business with over 6,000 employees</p> | <p>July 2016</p>  <p>India's leading fermentation based specialty API manufacturer</p> | <p>January 2011</p>  <p>Australia's largest operator of dental facilities with over 113 practices across 127 sites in Australia and NZ</p> | <p>November 2011</p>  <p>HK's largest physician-led medical service provider with a wide network of centers and affiliated clinics</p> |
| <p>January 2018</p>  <p>One of India's leading genomics and onco-pathology services providers</p> | <p>March 2018</p>  <p>One of Malaysia's leading specialty pathology services providers</p> | <p>March 2017</p>  <p>One of India's leading home healthcare networks integrated across healthcare delivery and pharmaceutical services</p> | <p>July 2017</p>  <p>Singapore's leading multi-specialty care group with expertise in cardiology, ENT, gastroenterology and aesthetics</p> |

South Asia Southeast Asia Asia-Pacific

Quadria has brought together an in-house healthcare ecosystem



Quadria has built a network of value creation enablers accessible to its partners

- Best-in-class operators across healthcare sub sectors to facilitate cross-pollination
- Top research and teaching facilities to provide world class clinical training and access to talent
- Global innovators providing access to cutting edge medical technology, techniques and medicine
- In-house early stage platform that offers access to disruptive technologies

Quadria's strong portfolio is supported by one of the largest healthcare ecosystems in the region, consisting of leading healthcare businesses, renowned training and education partners, as well as healthcare manufacturers and suppliers.

We focus on building long term sustainable partnerships between our companies and our healthcare network partners. Through this active and collaborative investment strategy, we seek to consistently add tangible value to the businesses we invest in.

Quadria is one of Asia's best positioned healthcare investors

| | | |
|--|---|--|
| Consistent track record of superior investment returns | Inimitable healthcare expertise | Largest dedicated healthcare team in Asia |
| QUADRIA CAPITAL | | |
| Diversified risk-focused investment strategy | Strategic approach to deliver value add | Proprietary deal flow at low entry valuations |
| | | Established local knowhow and network of relationships |

Striking high quality proprietary deals at low entry valuation

The extensive experience of the Quadria team in healthcare investing, operations and management enables us to accurately identify promising opportunities that others have not seen and apply a highly specialized approach to capitalize on these opportunities. This is the Quadria difference.

We provide businesses with long term value-added capital, empowering them to become regional leaders with strong operating metrics and solid fundamentals.

We continue to build on the trust our partners and portfolio companies place in us to influence organizational transformation for superior performance, social impact, and regional leadership.

Disclaimer

The information contained in this Quadria Capital's Thought Leadership is given, to the fullest extent allowed by law, without any liability whatsoever to Quadria Capital, any of its affiliates or related entities or any of their respective members, directors, officers or employees (collectively "Quadria") for any direct or indirect losses, damages (including special or consequential damages), or other costs or expenses whatsoever arising from any use of, or reliance placed upon, this presentation or its contents or otherwise. All content included in this Thought Leadership, such as graphics, articles and other materials, is the property of Quadria Capital or others noted herein and may be protected by copyright and their laws. All trademarks and logos displayed in this Thought Leadership are the property of their respective owners, who may or may not be affiliated with our organization. There can be no assurances that Quadria's investment objectives will be achieved or that our investment programs will be successful. Investors should read this Thought Leadership in conjunction with investment fund quarterly reports, financial statements and other disclosures regarding the valuations and performance of the specific investments listed herein. No representation or warranty, express or implied, is made or given by Quadria as to the accuracy, completeness or fairness of the information or opinions contained in this presentation. Further, certain information contained in this Thought Leadership represents or is based upon forward-looking statements or information. Forward-looking statements are inherently uncertain, and changing factors, such as those affecting the markets generally, or those affecting particular industries or issuers, may cause events or results to differ from those discussed.

Therefore, undue reliance should not be placed on such statements or the conclusions drawn therefrom, which in no event shall be construed as a guarantee of future performance, results or courses of action. The information contained in this Thought Leadership does not constitute investment, legal, tax or accounting advice. Recipients of this Thought Leadership should conduct their own due diligence and other inquiries in relation to

such information and consult with their own professional advisors as to the accuracy and application of the information contained in this Thought Leadership and for advice relating to any legal, tax or accounting issues relating to a potential investment in the regions or sectors described.

Quadria expressly disclaims any obligation or undertaking to update or revise any such forward looking statements. References to portfolio companies are intended to illustrate the application of Quadria's investment process only and should not be viewed as a recommendation of any particular security or portfolio company. The information provided about these portfolio companies is intended to be illustrative, and is not intended to be used as an indication of the current or future performance of Quadria's portfolio companies. The information provided herein is for informational purposes only and is not and may not be relied on in any manner as advice or as an offer to sell or a solicitation of an offer to buy interests in any fund or other product sponsored or managed by Quadria or any of its affiliates. Any such offer or solicitation shall only be made pursuant to a final confidential private placement memorandum (as amended

and/or restated from time to time) and the applicable fund's subscription documents, which will be furnished to qualified investors on a confidential basis at their request for their consideration in connection with such offering. The information and opinions contained in this Thought Leadership are provided by Quadria for personal use and for information purposes only. Each recipient of this presentation is solely liable for any use it makes of this information and Quadria disclaims any responsibility for any errors or omissions in such information, including any financial calculations, projection, and forecasts contained in this presentation. The information is inherently subject to change without notice and may become outdated. Each recipient should therefore verify any information obtained from this presentation before making use of it. By viewing this document each recipient agrees to be bound by the foregoing limitations and restrictions.

Quadria Capital Investment Management Pte Ltd.

LOCATION : Singapore

ADDRESS : 11-A, Stanley Street, Singapore 068730

CONTACT : +65 6805 9699

WEBSITE : www.quadriacapital.com

Quadria Capital Advisors Pvt. Ltd

LOCATION : New Delhi, India

ADDRESS : Level 2, The Crescent, Lado Sarai, Mehrauli, New Delhi 110030

PHONE NO. : +91 11 49539900

WEBSITE : www.quadriacapital.com