



Investment Spotlight

April 2020



Investing in Human Health Has Never Been in Sharper Focus

Dear Clients and Business Partners,

Without a doubt, the outbreak of the Covid-19 pandemic has brought about disruption and devastation to many countries and lives. While we are deeply concerned about the human cost, we believe it could trigger a positive revolution in healthcare. Covid-19 has sharpened the focus on the state of health around the world, and we believe this is likely to hasten a cascade of social, economic and political changes that will impact healthcare.

Along with incremental investment in healthcare infrastructure, we expect an acceleration in many innovative medical technological trends, renewed political will for reform, and the empowerment of patients as consumers. The pandemic crisis has intensified many structural changes, which we believe are here to stay for the long-run. Amid these fundamental shifts, we see many attractive opportunities, particularly in the areas of digitalisation, consumerisation, and innovative medical technologies.

The Covid-19 crisis has shown how high the stakes are for healthcare, and companies that can benefit from these transformational trends will be the winners of tomorrow.

Kind Regards,

Pierin Menzli
Lead Portfolio Manager
Head of Thematic Equities



Terence McManus
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The Covid-19 crisis brings a sharper focus on the state of health

The outbreak and spread of the coronavirus disease (Covid-19) at the beginning of 2020 has upended the lives of millions of people. Although its mortality rate is lower than that for the SARS epidemic in 2003 or MERS, it is much more infectious. We have seen the sheer number of infected patients with severe symptoms overwhelming healthcare systems in many regions such as Wuhan in China and Italy's Lombardy. The Covid-19 pandemic has brought into focus the state of global health and demonstrated the lack of adequate healthcare resources in many countries. For instance, the lack of diagnostic testing capabilities has meant insufficient key data regarding the viral spread. The shortage of crucial medical equipment like ventilators and acute care beds has also exacerbated the problems faced by many countries fighting the pandemic.

Global health – time for an acceleration of investment and change

While we are deeply concerned about the human cost of the current outbreak, we believe it could be the trigger for a positive revolution in healthcare. Once the pandemic passes, we expect a cascade of social, economic and political changes that will impact the health segment. We foresee an **acceleration in recent technological trends and patient empowerment**, backed by the investment and political will to drive real change. This will be more than just incremental government dollars, as all stakeholders (government, corporate, individual) will be behind the drive to push human health forward in the coming years.

One of the main shifts will be the acceleration in **innovative medical technologies**, driven by tech-giant market entrants, integration of big data, molecular diagnostics, genomics, robotics, digitalisation, and personalised medicine. The rapid rollout during the current crisis of technologies such as telemedicine, multiplexing diagnostic devices, and artificial intelligence-enabled fever-detection devices has been impressive. However, these examples are often the exception rather than the norm. Overall, healthcare still lags a long way behind other industries in the digital and robotic revolutions and has large potential for catch up.

Another big change we expect to see is the **renewed political will to drive much-needed healthcare reforms**. Healthcare will be forced to the top of every government's agenda. Besides investing resources in order to be better prepared for the next pandemic, we expect politicians to fervently take up the agenda to modernise healthcare, similar to what occurred in China after SARS. Before this outbreak, ongoing pressures from socio-demographics were already forcing change, and this will likely accelerate.

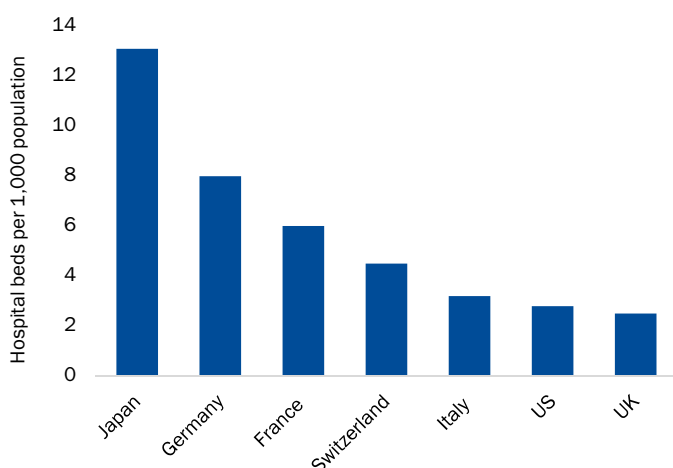
Lastly, there is the individual. We expect individuals to take more personal responsibility and to become **consumers with decision making power** rather than passive patients. Although physically locked-down in their homes, citizens have become more empowered decision makers, monitoring their own health, embracing telemedicine, online prescriptions delivery, and consumer health products.

Long-term pressures and opportunities will resurface

The Covid-19 crisis may have brought a sharper focus onto the problems facing healthcare today. However, many of the fundamental challenges underlying these problems have been years in the making. Long-term pressures on global health systems have been driven largely by socio-demographic changes such as expanding and aging populations, as well as increasing numbers of people with chronic, long-term conditions. Moreover, adding to the problems are costly infrastructure and medical technology investments, compounded by low levels of capital spending over many years. Rising labour costs and staff shortages, together with growing demand for a larger ecosystem of services, are also straining healthcare systems.

For years, financial challenges have overshadowed the world's public and private health systems to varying degrees, and we expect the situation be particularly acute in 2020. During this crisis, the disparity in the healthcare architecture (e.g. number of beds/ 1,000 population) between countries is being exposed.

Exhibit 1: Number of hospital beds per 1,000 population

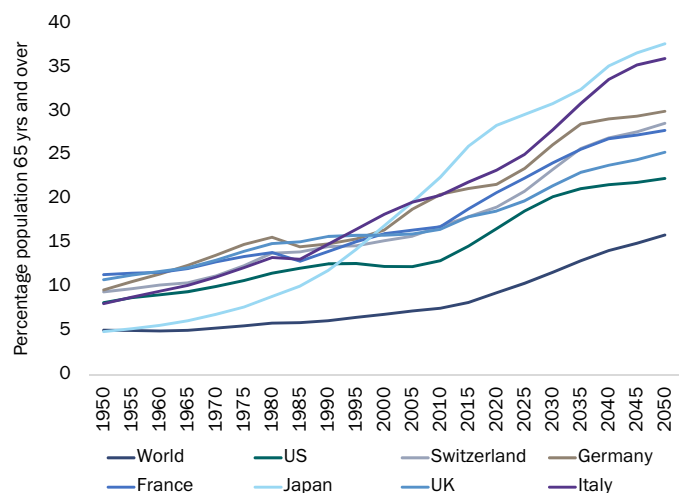


Source: Bank J. Safra Sarasin Ltd, OECD data (2017 or closest available data)

We expect these challenges to be tackled with greater urgency, political will, and investment capital than previously expected. In the emerging markets, population growth, combined with increased individual wealth and efforts to expand public health systems, will likely result in higher health spending. Governments are set to increase expenditure in the sector while the growth in income will drive out-of-pocket spending. Asian countries will contribute around half of the global growth in higher-income households (those earning over USD 25'000 per year) through to 2030¹. Along with education, better healthcare provision is a priority for the emerging Asian middle-class.

Unlike their developing counterparts, many developed countries face the problems that come with aging populations. Providing health care to the expanding elderly demographic will remain a key concern for governments and health systems. Overall global life expectancy reached 72.6 years in 2019, an improvement of more than eight years since 1990. Further improvements in life expectancy are projected to result in an average length of life globally of around 77.1 years in 2050². By this time, the number of people aged over 65 will be more than 1.5 billion, or 16 percent of the total global population. The trend will be most noticeable in Japan, where the share of people older than 65 years is expected to reach nearly 40 percent².

Exhibit 2: Percentage of population aged 65 years and over



Source: Bank J. Safra Sarasin Ltd, UN population database 2019

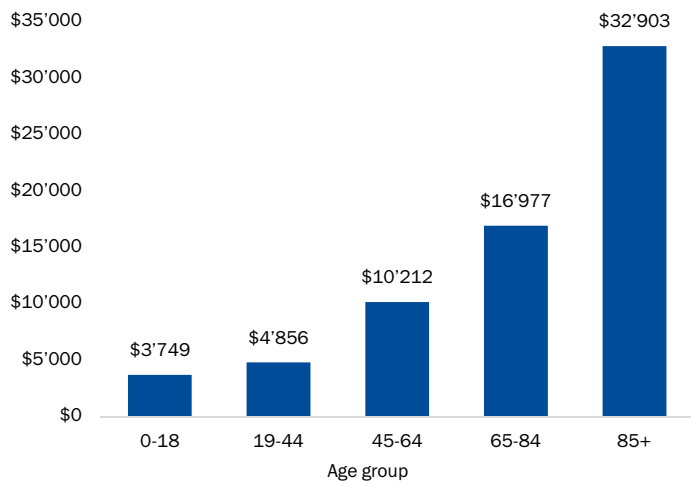
This, however, also presents opportunities as medical spending in older age groups is significantly higher, as shown in Exhibit 3. While this demographic consumes more healthcare, it is also becoming more active and healthier. Spending on the global elderly care market (home health, remote patient monitoring, etc.) will likely exceed USD 1.4 trillion by 2023³.

¹ Global Outlook: Healthcare, The Economist Intelligence Unit, 2019

² An Aging World, US Census Bureau, 2015

³ Medicaid and digital health, Deloitte Insights, 2018

Exhibit 3: Medical spending per age group in the US

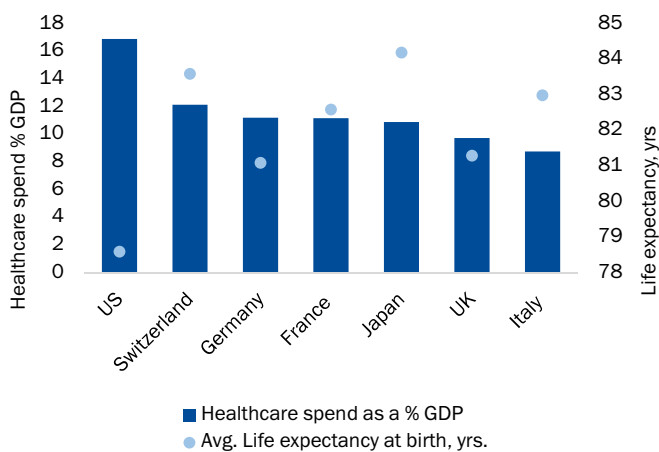


Source: Bank J. Safra Sarasin Ltd, Centres for Medicare & Medicaid Services (CMS).

While spending on healthcare is expected to rise, we believe that alone will not be enough to improve the situation. **A fundamental reform to the healthcare system and an embrace of new technology will be required.**

Although increased healthcare spending has been matched by improvements in health when comparing extremes (developed vs. developing nations), this correlation breaks down when comparing between large developed nations. From Exhibit 4, we see that although the US spends significantly more on healthcare than any other large developed nation, it has the lowest life expectancy.

Exhibit 4: Healthcare spend vs. life expectancy



Source: Bank J. Safra Sarasin Ltd, OECD data (% GDP = 2018; Avg. life expectancy = 2017 or closest available data)

China is a good example of how increased spending, together with a reform of the healthcare system and the use of technology improves the overall health standards for its citizens. After the SARS epidemic, the Chinese government quickly launched an overhaul of the healthcare system to improve access to things such as services and high-quality supplies. It invested in systems for disease surveillance and reporting, as well as epidemic prevention and control. Centres for disease control were built across the country and public insurance

programmes were vastly expanded to provide affordable care for the rural population.

The role that technology can play in healthcare cannot be understated. Nevertheless, healthcare is one of the few industries left that has not yet had its own “tech revolution”. It has not experienced an improvement in labour productivity from technology and, in fact, this continues to worsen. The focus on expert labour without any technology automation to improve labour efficiency is a key contributor to rising costs, and these escalating costs do not necessarily translate into better outcomes for patients. We have seen, especially during episodes of epidemics, that healthcare professionals play an extremely vital role. We need to ensure that healthcare professionals are given the tools, technology, and correct regulatory environment to maximise health outcomes.

An example of how a country has attempted to address this issue is the US. Following the Global Financial Crisis, the HITECH Act was created to motivate the implementation of electronic health records (EHR) and supporting technology in the US. President Obama signed HITECH into law in February 2009 as part of the American Recovery and Reinvestment Act of 2009 (ARRA), an economic stimulus bill. Over the next five years, the government invested billions of dollars in the widespread roll-out of EHR in hospitals.

Smarter spend – time for healthcare to catch-up

The Covid-19 crisis has shown how high the stakes are for healthcare. By almost any measure, global health has improved dramatically in recent decades. However, with the recent pandemic, we have seen that the current model of healthcare systems still faces many challenges. Yet, with these challenges often come opportunities. With around USD 7.5 trillion spent globally each year on health⁴, the rewards are likely to be substantial for players who can successfully benefit from transformational changes. Below, we outline three major themes where we see attractive opportunities for the future of health.

1) Digitalisation

The introduction of digital services, and the use of digital health data, will be among the most important factors in transforming human health over the next decade. They aim to reduce face-to-face and in-patient utilisation, as well as deliver health data for outcomes measurement. The recent coronavirus pandemic is expected to speed up this transition.

The use of virtual health or **telemedicine** —connecting clinicians with patients (and with other clinicians and stakeholders) through telecommunication and networked technologies has increased significantly during the crisis. Leading US telemedicine player Teladoc Health has reported a 50% increase in weekly volumes. Ping An Good Doctor, a Chinese healthcare services platform, had a nearly 900% increase in new users in January 2020. In France, video consultations with doctors are being reimbursed for the first time, while Germany has removed restrictions on telemedicine. We expect these changes in behaviour to stick. Even before the recent coronavirus pandemic, the telemedicine market was forecast to grow at a healthy 17% compounded

⁴ WHO – Public Spending on Health: A Closer Look at Global Trends, 2018

annual growth rate (CAGR) over the next 5-years (2020-2025)⁵. We expect this to be significantly higher as a result of the acute lockdown measures, bringing forward longer-lasting market changes.

Digital solutions in healthcare fall into several buckets. Along with telemedicine, we expect **telehealth** or remote patient monitoring, to have grown significantly during the Covid-19 lockdown. Instead of monitoring a patient's chronic conditions like diabetes or hypertension in a long-term care environment such as a nursing home, or a doctor's clinic, patients are outfitted with biosensors that measure and report key health data back to care providers. Under this system, providers intervene only when the health data highlight anomalies. Telehealth devices are also being used to monitor and reinforce a patient's compliance with a particular home-administered treatment. Telehealth can also provide the data needed for population health and value-based agreements. During the Covid-19 outbreak, certain physicians and their patients will be demanding such services.

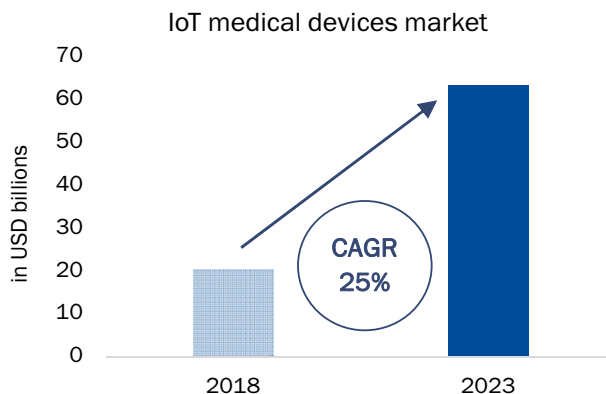
To relieve current pressures from socio-demographics and prepare for future epidemics, the digitisation of healthcare systems globally needs to rapidly advance. **Electronic health records (EHR), digital prescriptions** and other IT infrastructure could systematically track and analyse patient data. Having large scale health data at the population level, recorded in EHR datasets, enables the utilisation of analytics to offer huge opportunities to treat and monitor at-risk patient populations.

Another area in which digitalisation can have a big impact on healthcare is in **telemarketing**. In the US, it is still common for sales representatives to visit doctors' offices or hospitals to market and promote products. This is labour intensive and expensive, with some commentators suggesting that it contributes to the higher cost of medicine in the US compared to Europe, where such practices are less common. During the Covid-19 crisis, new drugs or device-marketing has been forced to shift online, through direct marketing, telemarketing, and conference calls. We expect this trend to continue even after the crisis is over. In the long-term, this could lower marketing costs for pharmaceutical and med-tech companies and help improve the overall efficiency of the healthcare system. Technologies such as cloud computing, 5G technology, artificial intelligence (AI), natural language processing (NLP), and the Internet of Medical Things (IoMT) can help deliver health care services in ways that consumers prefer to receive them.

While few industries have the potential to be changed so profoundly by digital technology as healthcare, the challenges facing innovators should not be underestimated. Silos need to be broken down to maximise these digital measures. Regulatory barriers, economic hurdles and difficulties in effectively digitising patient data await those who wish to launch pioneering services. Government reforms around data usage need to be accompanied by collaborations between healthcare industry participants, as well as and tech firms, to make use of big data opportunities to improve human health. While investment may

increase after the coronavirus pandemic wanes, to deliver continued improvements to global health, healthcare will need to be transformed, with digitalisation playing a vital role.

Exhibit 5: Tech Giants have entered the Health market



Source: Bank J. Safra Sarasin Ltd, Markets and Markets "IoT Medical Devices Market" as of 2018.

The importance that technology plays in healthcare can be seen in the surge in the field of med-tech. As Exhibit 5 shows, the Internet of Things (IoT) medical devices market is targeted to grow by an average of 25% a year.

Additionally, the digitalisation of healthcare is a key enabler required to drive other reforms and transformations. For example, the expansion of value-based healthcare, which reimburses healthcare providers for the quality of care, requires digitalisation given its high data dependency.

Organisations that continue to look at digital transformation as a mere buzzword run the risk of being reduced to "also-rans" in the race. The trend is here to stay and slated to lay the foundation for new care delivery models, shape a predictive, preventive, and personalised future; promote closer collaboration among sector stakeholders; and drive cheaper, more precise, and less invasive treatments and therapies.

2) Consumerisation

As a result of Covid-19, around 2 billion of the world's population now live in a "lock-down" condition. While self-isolating, individuals have turned to their health needs through telemedicine, online prescription delivery, and consumer health products. They have become consumers. They have also become active participants, monitoring their symptoms and taking their temperature. The healthcare system of the future will look very different, with a crucial change being the move towards "consumer-centric" healthcare, allowing citizens to have much more responsibility for managing their healthcare and that of their families. In addition, in the post-Covid-19 world, we also expect end-consumers to take on a greater financial burden with respect to healthcare investment.

⁵ Telehealth Market Report, 2020. Information containing forecasts are intended for information purposes only and are neither projections nor guarantees of future developments and could differ significantly for various reasons from actual forecasts. Past performance is not indicative of current or future performance.

Individuals will no longer be passive participants in their health care. Consumers will demand more transparency, convenience, access, and personalized products and services in the area of healthcare — similar to other aspects of their lives. It is, therefore, important for health systems to adapt their strategies accordingly.

The advent of patient-centric healthcare will allow greater emphasis to be placed on prevention and access, using digital tools to improve productivity (by reducing the need for specialised labour), boost efficiency and reduce costs. We see telemedicine, home health, personal diagnostics, and consumer health to benefit from the consumerisation trend.

Along with telemedicine, some health systems are doing this by transitioning certain inpatient procedures from inside hospital walls to less acute outpatient settings such as ambulatory care centres, retail clinics, community health centres, and even people's home (also known as home health). This will result in a new structure for the healthcare system, with more focus on developing services to provide improved access and quality of care at lower cost.

The coronavirus pandemic has changed the way **home health** has been operating and their patient flow. The Centres for Medicare and Medicaid Services (CMS) in the US has ruled that televisits can be reimbursed, enabling telemedicine to partly replace in-person visits (for self-isolation purposes). The unfortunate outbreak of Covid-19 in some nursing homes has driven loved-ones to choose to move their elderly relatives back home. Home health has also been taking market share from closed physician clinics. In addition, to aid in self-isolation, some elderly patients who were due to enter a skilled nursing facilities or nursing homes have chosen home health. We expect some of these trends to persist following the Covid-19 crisis, driving expansion of the home health sector. Some key companies that stand to benefit from this trend are LHC Group and Amedisys*.

An example of consumerisation, along with digitalisation and telehealth, is continuous glucose monitoring within the **personal diagnostics** space. Technological innovation, matched with consumer demand, drove sales of Abbott Labs FreeStyle Libre to USD 1.8 billion in 2019. Innovation is thriving within this segment, leading to greater remote patient monitoring. The patient and physician have more data to manage the patient's diabetes, with potentially fewer patient visits to the doctor needed. Besides Abbott Labs, Dexcom is another key player in this field*. We see continuous glucose monitoring as an advanced version of smart wearables. The market is expected to see booming demand and ahead of the Covid-19 pandemic, it was already projected to increase at a healthy 19% CAGR over the next 5-years (2020-2025)⁶.

Exhibit 6: Example of glucose monitoring device



Source: Getty Images. Shown for illustrative purposes only.

80 percent of health outcomes are caused by factors unrelated to the medical system. People's eating and exercise habits, socioeconomic status, and where they live tend to have a greater impact on health outcomes than healthcare⁷. For a better global health, we expect individuals to take more personal responsibility and become consumers and stakeholders rather than passive patients. The trend towards nutrition, healthy eating, and exercise will continue, and perhaps accelerate, now that the Covid-19 crisis has made us all face up to our own mortality. Consumer health and home hygiene has seen strong demand in the early stages of the outbreak (key companies: GSK & Reckitt Benckiser*).

As seen during the current crisis, it is our own responsibility to keep hospital beds and doctors' time reserved for the most vulnerable in society.

3) Innovative medical technologies

There are many examples of innovative medical technologies that need support across stakeholders. We point to two which have seen greater utility to try and tackle the Covid-19 pandemic.

Diagnostics. Early diagnosis of diseases leads to better outcomes for patients, regardless of whether that is for a new viral outbreak or the early detection of cancer. The role of molecular diagnostic techniques, access to testing kits, and testing volume for devices has been a focus during the early phase of the coronavirus outbreak. Early tests required samples to be sent to centralised laboratories, with the results taking 24 hours. The more recent roll-out of multiplexing and isothermal system desktop devices have enabled rapid (5 to 60 minutes) turnaround at the point-of-care. Companies that are well-positioned in this include Qiagen, Danaher, and Abbott Labs.* We believe the use of these desktop system placements would have increased during the crisis, therefore we see a longer-lasting impact on improved point-of-care diagnostics.

⁶ Smart Wearable Market Report, 2020. Information containing forecasts are intended for information purposes only and are neither projections nor guarantees of future developments and could differ significantly for various reasons from actual forecasts. Past performance is not indicative of current or future performance.

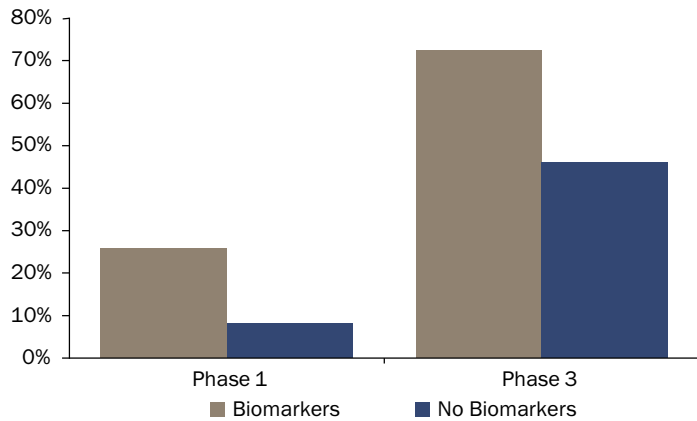
⁷ Schroeder, NEJM, 2017

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Driven by new technology such as genetic sequencing, improved sensor technology, miniaturisation, and robotics, we are seeing a revolution in the way that we diagnose and monitor diseases. Companion diagnostics (biomarkers which aid in treatment decision making) also help to improve research and development efficiency, speeding up new drug innovation.

Exhibit 7: Companion diagnostics are improving R&D efficiency

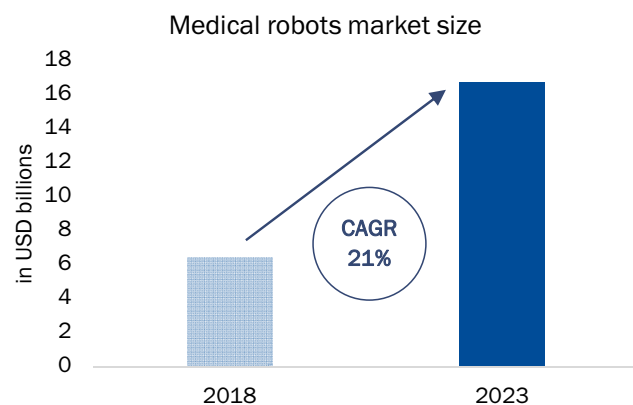
Higher probability of R&D success of companion diagnostics than without



Source: Bank J. Safra Sarasin Ltd, BIO Industry Analysis. Phase 1 = early clinical trial, Phase 3 = late-stage clinical trial

Robotics. Robotics in health have seen a new wave of interest in recent years and are slowly becoming more present in the laboratory and hospital diagnostics space. Companies like Tecan* have been providing automated robotic systems to speed-up Covid-19 tests. Robotic surgery has been a growing market, supporting physicians to drive better outcomes in both general surgery and orthopaedic surgery. In the future, we expect AI and machine learning to be used to maximise surgery processes using inter-connected robotic surgeons.

Exhibit 8: Medical robotics could be a game changer⁸



Source: Bank J. Safra Sarasin Ltd, Medical Robots Market Report, 2018

Big data and AI are going to increasingly be used to improve health outcomes. For example, Google showed that breast cancer detection can be improved when performed with AI. We have seen partnerships form between traditional tech players and healthcare companies in order to advance this field. Johnson & Johnson partnered with Google to develop a robotic surgery platform that used machine learning. In addition, AI is being used for better and quicker clinical trial recruitment. Several companies active in this field are Alphabet and IQVIA*.

Conclusion

The Covid-19 pandemic has brought into sharp focus the challenges faced by many healthcare systems in the world, as well as the urgent need for improvements to be made. This is likely to hasten a cascade of social, economic and political changes that will impact the health segment. We expect an acceleration in many recent medical technological trends, backed by renewed political will to advance healthcare, as well as the empowerment of patients as consumers. The pandemic crisis has exacerbated many structural changes, which we believe are here to stay for the long-term. Amid these fundamental shifts, we see many attractive opportunities in the areas of digitalisation, consumerisation, and innovative medical technologies. The Covid-19 crisis has shown how high the stakes are for healthcare, and companies that can benefit from these transformational trends will be the winners of tomorrow.

⁸ Past performance is not indicative of current or future returns. Information containing forecasts is intended for information purposes only and are neither projections nor guarantees of future results and could differ significantly for various reasons from actual performance.

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