

The background of the slide features a close-up, blue-tinted image of a stethoscope. Overlaid on the right side are several hexagonal icons representing various medical concepts: a syringe, lungs, a bandage, a heart, a plus sign, and an ECG line. The overall aesthetic is professional and healthcare-oriented.

2021 China Healthcare Market Report

Part II MedTech and Devices Market

CEC CAPITAL

October 2021

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Executive Summary

- This is the second in a series of reports providing a comprehensive overview of the rapidly developing healthcare industry in China
- This second report provides an overview of the MedTech and Devices industry in China and emerging opportunities for investors within this sector. This report follows the first installment of the series published in July 2021, which was focused on the biotech and drug development market.
 - The first report led with an overview of the healthcare industry in China and drivers of growth and change impacting the overall market for the next decade. For reference, we have included this overview in the Appendix
- This report is divided into three sections and an appendix:
 - Current State of China Medtech and Devices Market (p. 5-11)
 - China MedTech and Devices Market – Investment Themes and Predictions (p. 12-22)
 - China-based Medtech and Devices Companies to Watch in 2021 (p. 23-29)
 - Overview of China's Healthcare Market (Appendix p. 30-46)

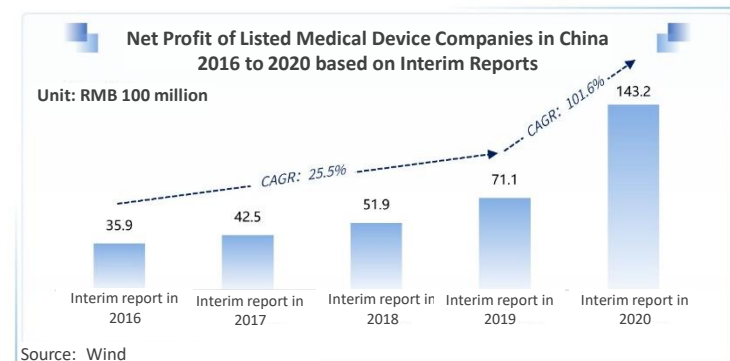
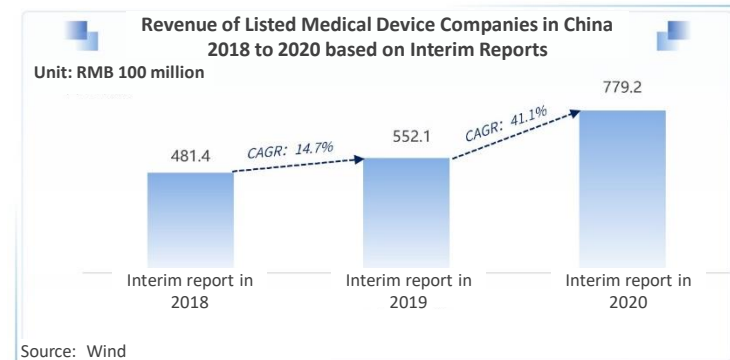
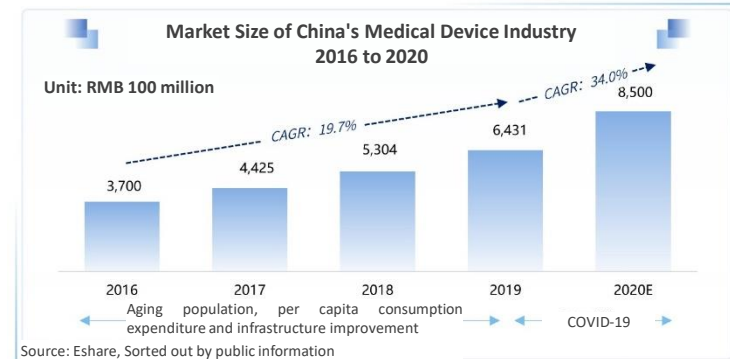
Executive Summary

- China's MedTech industry has grown at a rapid clip over the past 5 years, having grown at nearly 20% CAGR and exceeding an estimated US\$131 bn in revenue in 2020 or an estimated 20% of the global MedTech market
- While the COVID-19 pandemic has contributed to a recent surge in demand and acceleration of policies, longer-term trends have driven the growth of the MedTech industry and will continue to do so into the next decade
 - Increase in patients with chronic diseases due to aging population; growth in per capita medical consumption resulting from growing per capita income levels; government policy supporting improvements in medical clinic and hospital infrastructure
- Policies have also accelerated substitution of medical devices (often imported from overseas) with domestic brands in an effort to improve affordability and accessibility to less developed areas of the country
- COVID-19 has also accelerated adoption and commercialization of recently developed technologies for use in medical diagnosis and treatment with faster regulatory approval pathways in certain categories
 - Imaging-based diagnosis augmented by AI, medical robotics, single-cell technologies, and diagnostic devices leveraging CRISPR
- Volume-based procurement (VBP) policies for various drugs and medical devices are being normalized by the government, impacting pricing and margins for industry players in the near-term, and driving industry players to broaden product offerings and gain scale through M&A and investment longer-term
- Newer market entrants are leveraging their consumer platforms (e.g., Alibaba, Tencent, and JD.com) to build online health platforms, while adjacent players (e.g., CROs, CDMOs) and pharmaceuticals seek to partially mitigate the effects of VBP by expanding their product lines and operating scale to include medical devices
- Against this backdrop, investment activity for private startups in the MedTech and Devices sector has been robust, and the IPO and public markets for the sector on HKEX and China exchanges have generally outpaced global peers
- Seven specific areas of China's MedTech and Devices market are expected to see significant investment activity and we provide a brief profile of 25 leading firms in China that will be exciting to watch in 2021

Current State of China MedTech and Devices Market

China's MedTech Market Maintains Rapid Growth

- China's MedTech industry has grown at a rapid clip over the past 5 years
 - China's MedTech market has captured nearly 20% of the global MedTech market
 - In 2019, China's MedTech industry reached a market size of RMB 643.1 bn (US\$ 99.4 bn), representing 19.6% YoY growth
 - 2020 revenue is estimated to have grown to RMB 850 bn (US\$ 131 bn) given the surge in demand for nucleic acid test kits, extracorporeal membrane oxygenation (ECMO) machines, and medical masks due to COVID-19
 - In the wake of COVID-19, the market is expected to maintain high growth rates as government policies drive improvement of the country's healthcare infrastructure over the next decade
- Key growth drivers for China's MedTech market
 - Increase in patients with chronic diseases due to aging population
 - Growth in per capita medical consumption resulting from growing per capita income levels
 - Government policy supporting improvements in medical clinic and hospital infrastructure



COVID-19 has had a profound impact on the MedTech industry, demand will grow as market begins to shift focus toward a more decentralized healthcare system

- Growing focus on improving primary care delivery and infrastructure driving accelerated substitution of medical devices with domestic brands
 - Mid- to high-end medical device market in China is highly dependent on imports
 - Shortages in ECMOs were experienced during initial outbreak of COVID-19 last year
 - In March 2020, the government proposed policies to:
 - Strengthen China's focus on high-end medical devices
 - Accelerate development of core breakthrough technologies
 - Achieve greater self-reliance over high-end medical devices
- At the same time, countries have reduced/exempted import tariffs on China-made medical devices
 - Export volume of China-made medical consumables in 1H 2020 increased by 43% over 1H 2019
 - China has exported over 26,000 ventilators and oxygen generators to India (as of April 2021)
- China's regulatory approval process has accelerated, reducing cost and time needed for product approvals
 - In Feb 2020, the NMPA introduced emergency approval channels to ensure supply of materials and medical devices
 - In Dec 2020, 7 categories of medical devices were downgraded from Class III to II and 8 from Class II to Class I

Fractional Flow Reserve (FFR) Market Financings – 2020 and 2021 YTD

Company Name	Financing Activity
KEYA MEDICAL	<ul style="list-style-type: none"> ■ 5 rounds of financing from 2020 to present, with total capital raised of nearly RMB 1 bn ■ IPO on HKEX in process
SHUKUN	<ul style="list-style-type: none"> ■ Series B+ financing of RMB 200 mm in June 2020 ■ Strategic financing of RMB 200 mm in August 2020 ■ Strategic financing of RMB 590 mm in December 2020
RAYSIGHT	<ul style="list-style-type: none"> ■ Series A+ financing of RMB 50 mm was in June 2020 ■ Series B financing of nearly RMB 300 mm in January 2021
PULSE MEDICAL	<ul style="list-style-type: none"> ■ Series B financing of hundreds of millions of RMB in November 2020, IPO process underway
RUNXIN	<ul style="list-style-type: none"> ■ Equity financing in April 2020 and February 2021, IPO process underway

Recent Medical Device Class Reclassifications for Examination and Approval by the NMPA

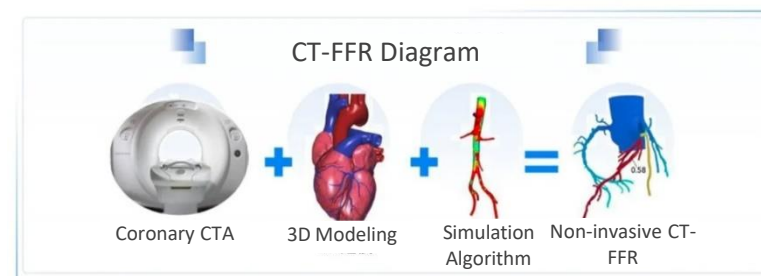
From Class III to Class II	From Class II to Class I
Active equipment for endoscopic surgery, urological X-ray machine, oral X-ray machine, optical endoscope, electronic endoscope, endoscope insertion shape observation system, gynecological endoscope	Erythrocyte sedimentation instrument, microbial turbidimetry instrument, medical microscope, blood capture card, counting chamber, exophthalmometer, oral imaging aids, implant equipment

COVID-19 has had a profound impact on the MedTech industry, demand will grow as market begins to shift focus toward a more decentralized healthcare system

- The pandemic has seen a streamlining of the supply chain in the medical devices space, and both horizontal and vertical integration to satisfy growing market demands
 - Companies will further optimize their logistics infrastructure, establish more effective internal management practices (enabled often by IT and software), and formulate emergency response plans as they adapt to a post-pandemic environment
 - Upstream and downstream M&A activity is anticipated to take place
 - Midstream distributors may merge with upstream manufacturers as an attempt to secure supply channels
 - Smaller upstream manufacturers may merge with larger midstream channel companies to facilitate automation
 - Downstream medical service providers may merge with midstream channel companies to provide higher quality services
- The pandemic boosted the use of new medical technologies and AI to reduce workloads
 - Examples: Ward Robots, Virus Isolation Systems, Air Purification Systems, Temperature Detection Systems
- The pandemic has catalyzed the development of rapid diagnosis technologies like Point-of-Care Testing (POCT)
 - Convenient and miniaturized POCT products are suitable for rapid diagnosis and will see significant growth in the IVD market
 - Small biochemical analyzers, blood cell analyzers, PCR and gene sequencing machines
 - Microfluidics has also become an area of focus
- High-value consumables are experiencing short-term usage declines due to the suspension of non-urgent procedures, but this is expected to rebound in the wake of the pandemic

New Technologies Redirect the Development of Medical Devices

- With the emergence of new medical technologies in recent years and the COVID-19 pandemic accelerating adoption, momentum has picked up behind the commercialization of these technologies for the use in medical diagnosis and treatment
 - Artificial Intelligence (AI)
 - Imaging-based FFR (Fractional Flow Reserve) typically measured by using AI and hydrodynamic algorithms
 - Robotics
 - In January 2019, the world's first remote surgical operation was completed on an animal specimen in China utilizing 5G technology
 - Single-cell technologies
 - Single-cell technologies furthering the understanding of the interaction between single cells and adjacent cells
 - CRISPR
 - During the pandemic, the use of diagnostic products leveraging CRISPR technology grew in response to the need for rapid detection of SARS-Cov-2



Select Medical Robotic Players

Major Category	Sub-category	Domestic Players
Surgical	Neurosurgical	Sinovation, Remebot
	Endoscopy	WEGO, Si Rui Zhe, Edge Medical, SHURUI, SS Innovations
	Orthopedic	TINAVI, JOINTECH, Shanghai Fengsuan, Lancet Robot
	Vascular Intervention	Aopeng Medical Technology
Assistive	Capsule	ANKON, JINSHAN SCIENCE & TECHNOLOGY
Rehabilitation	Exoskeleton	Fourier, Ai-Robot
	Auxiliary rehabilitation	VISHEE
Service	Drug dispensing	SANGGU
	Blood collection	MagicNurse

New VBP policies and COVID-19 have driven incumbent MedTech and Device companies to pursue R&D and M&A more aggressively

- Global market leaders in the MedTech industry have grown throughout the years through a combination of M&A and investment. We believe it will be no less different for the MedTech industry in China as a combination of government policy and the ongoing effects of the COVID-19 pandemic shine a light on the growing disparity in performance among players in the industry.
- COVID-19 has had the effect of catalyzing an acceleration of M&A activity in the Chinese MedTech market. In the next three to five years, M&A is expected to ramp up as market leaders benefiting from the pandemic seek to acquire and rationalize those players that have been left weakened. We see this to be the case especially within the IVD market.
- Additionally, VC-backed start-ups leading technological innovation in the sector are likely to become M&A targets for more mature companies seeking growth opportunities, unable to move as nimbly on their own.
- The Chinese government's recent volume-based procurement (VBP) initiatives have led to reduced pricing and margins on medical device products, spurring increased internal and external investment into innovation among MedTech players in the market.
- The market is unlikely to ever see again an era where one single product could be expected to support the growth of a company in the sector in China for several years (in the case of some, over a decade).
- Products in highest demand driving the largest expenditures for the country's social insurance system are likely to be subject to volume-based procurement (VBP), especially after import substitution reaches a certain level.
- MedTech and Device manufacturers in China are being driven to add new innovative and higher-profit product lines in their pipelines to avoid anticipated rapid declines in overall profitability due to VBP

New Players Pouring in, changing the structure of the MedTech industry

- In the next decade, China's MedTech industry will witness increased domestic substitution, homegrown innovation, platform-based distribution, and new extensions of the supply chain
- New entrants to the market include:
 - **Internet giants** leveraging big data and consumer engagement platforms to build online healthcare platforms (e.g., Ali Health and JD Health) and increase investment in upstream segments of the market, especially in the MedTech industry
 - **Service providers** with large competitive moats or platform companies with significant scale will likely become leaders in the value chain
 - CRO / CDMOs and platform-driven marketing service providers
 - **Pharmaceutical companies entering the medical device space** have begun engaging in various modes of cooperation, including M&A, minority equity investment, technical collaborations, and strategic partnerships

New Industry Players



Tencent AI Lab | 舜宇光学科技 | 金域医学

Tencent AI has developed an intelligent microscope, the first of its kind approved for clinical use in China. The microscope can quickly calculate the number of immunohistochemically positive tumor cells in an area within 300 milliseconds after the visual field is determined in an immunohistochemical scene.



蚂蚁金服 | yuwell 鱼跃

Ant Consumer Finance Co. and China's largest household medical device manufacturer have jointly developed a variety of health products for consumers, especially in higher priced categories, allowing high-end medical devices to be more easily accessible to the public by providing consumers with affordable financing.

China MedTech and Devices Market – Investment Themes and Predictions

Shift toward volume-based procurement bringing both challenges and opportunities

- In 2020, the Chinese government began officially launching nationwide volume-based procurement (VBP) initiatives, advocating centralized procurement of devices at discounted prices, which has had the effect of helping domestic medical device manufacturers capture market share
 - In September 2020, the State Council and NHSA announced the first nationwide VBP plan focusing on coronary stents to be completed by the end of 2020
- Sharp price decreases in high-value consumables are expected in the near-term since equipment manufacturers may proactively lower prices in order to gain market share
- While weaker players in the market face marginalization and as the industry is reshaped, the shift toward VBP will also create opportunities for some:
 - **Large CSOs** and manufacturers will be driven to seek agents for cooperation in order to secure volumes. Large CSOs with access to consumers and reasonably priced service offerings are likely to flourish
 - **Companies with strong product innovation capabilities and multiple product lines** will grow faster with policy support, while consumable companies with single product lines will face a higher risk
 - **Companies with overseas businesses** will tend to fare better as international sales will bring diversified sources of income, risk diversification, and the benefits of greater scale

Shift toward volume-based procurement bringing both challenges and opportunities

- In response to the policy shift toward VBP, investors have begun shifting their focus to product categories not impacted by the government's VBP policy
- Cardiovascular intervention products, such as FFR-based consumables that help accurately judge whether patients should be implanted with stents, have been the target of significant investor activity
- In 2020 and particularly in the second half, players in the FFR space completed multiple rounds of financings, as detailed below

Financing Activity in the FFR Market in 2020

Company	Financing Activity
KEYA MEDICAL	<ul style="list-style-type: none">■ Five rounds of financing completed since 2020, with total financing amount of nearly RMB 1 bn (USD 160 mm)■ Announced plans for an IPO listing on HKEX
SHUKUN	<ul style="list-style-type: none">■ Series B+ financing of RMB 200 mm (USD 31 mm) completed in June 2020■ Strategic financing of RMB 200 mm (USD 31 mm) completed in August 2020■ Strategic financing of RMB 590 mm (USD 92 mm) completed in December 2020
RAYLIGHT	<ul style="list-style-type: none">■ Series A+ financing of RMB 50 mm (USD 7.8 mm) completed in June 2020■ Series B financing of nearly RMB 300 mm (USD 47 mm) completed in January 2021
PULSE MEDICAL	<ul style="list-style-type: none">■ Series B financing of “hundreds of millions” of RMB completed in November 2020■ Concurrently announced plans for an IPO listing on HKEX
RUNXIN	<ul style="list-style-type: none">■ Equity financings completed in April 2020 and February 2020■ Concurrently announced plans for an IPO listing on HKEX

IPO activity on the Shanghai STAR Market and HKEX will drive activity in the primary market for innovative MedTech and Device companies

- Total of 262 companies have listed on the STAR Market (as of Apr 2021), of which 55 were in the healthcare industry. Of the healthcare companies that listed, 28 were in the MedTech and IVD space

Recent Listings of Medical Device and IVD Companies on STAR Market

Listing Date	Company	Ticker	Description
2021/4/13	Novogene	688315.SH	Genomics solution provider
2021/4/9	CHIVD	688468.SH	IVD instrument and supporting reagents service provider
2021/3/31	XIANGYU MEDICAL	688626.SH	Rehabilitation equipment
2021/3/25	ALLTEST	688606.SH	IVD reagent provider
2021/2/26	NOVELBEAM TECHNOLOGY	688677.SH	High-end medical and optical devices R&D
2021/2/1	CareRay Digital Medical Systems	688607.SH	R&D manufacturer of digital imaging diagnostic equipment
2021/1/18	Liferiver	688317.SH	Molecular diagnostic reagent developer
2021/1/13	HOB	688656.SH	Clinical diagnostic reagent developer
2021/1/7	APT Medical	688617.SH	Manufacturer of minimally invasive interventional devices for cardiovascular
2020/9/28	TOUCHSTONE	688013.SH	Developer of disposable surgical medical devices
2020/9/18	iRayTechnology	688301.SH	Amorphous silicon flat-panel detector developer
2020/8/28	SANSURE	688289.SH	Developer of molecular diagnostics and gene detection technology
2020/8/20	Ibp	688393.SH	Manufacturer of pathological diagnostic products
2020/7/29	Eyebright	688050.SH	Developer of vascular interventional robot system
2020/7/21	VISHEE	688580.SH	Rehabilitation medical devices
2020/7/7	TINAVI-U	688277.SH	Medical robot
2020/4/9	Sanyou Medical	688085.SH	Developer of orthopedic implanted medical devices
2020/2/5	Orient Gene Biotech	688298.SH	IVD reagent platform
2020/1/22	Jet Biofil	688026.SH	Supplier of high-end consumables for biological laboratories
2019/12/9	Balance Medical	688198.SH	Developer of implanted medical devices for cardiovascular diseases
2019/12/5	Bioperfectus	688399.SH	Provider of molecular diagnostic equipment and reagents
2019/12/3	Maider	688310.SH	Developer of medical consumable intelligent equipment
2019/12/3	Chison	688358.SH	Developer of medical ultrasonic diagnostic instruments
2019/11/5	Lifotronic	688389.SH	Developer of IVD devices and bedside treatment and rehabilitation equipment
2019/10/30	SINOMED	688108.SH	High-end interventional medical device provider
2019/9/30	Hotgen	688068.SH	Clinical POCT and biosafety testing equipment provider
2019/7/22	Endovastec	688016.SH	Interventional medical device R&D and manufacturer
2019/7/22	Micro-Tech Endoscopy	688029.SH	Developer and manufacturer of minimally invasive diagnosis and treatment equipment

IPO activity on the Shanghai STAR Market and HKEX will drive activity in the primary market for innovative MedTech and Device companies

- Valuations and liquidity for companies in the MedTech and Device sector have seen increases after several MedTech and Device companies successfully listed on the HKEX
- Innovative MedTech and Device companies with high technological barriers, a proprietary product offering, and market leading positions were highly favored in Hong Kong

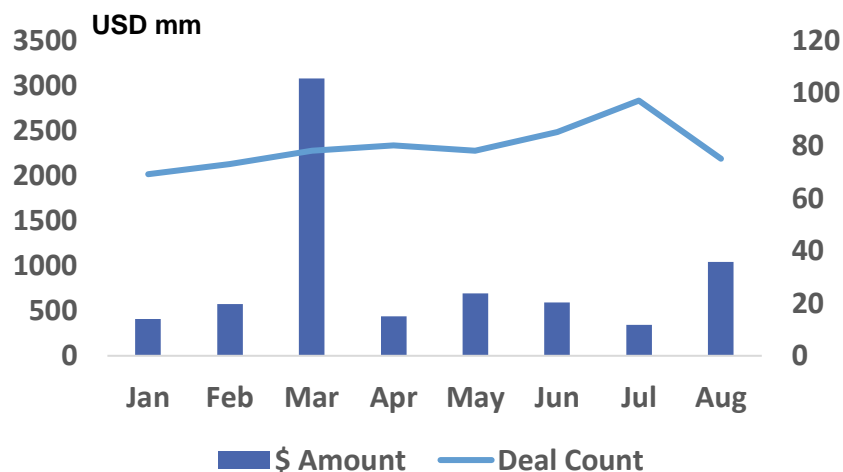
Recent Listings of Medical Device and IVD Companies on HKEX

Listing Date	Company	Ticker	Description
2021-02-18	New Horizon Health-B	6606.HK	Biotechnology company specialized in early screening of cancers
2021-02-08	BASECARE-B	2170.HK	Gene technology research company in reproduction
2021-02-04	MicroPort-B	2160.HK	Developer of medical device implantation and intervention for heart valves
2020-06-29	Kangji Medical	9997.HK	Endoscopic surgical instrument developer
2020-05-15	PEIJIA MEDICAL-B	9996.HK	Developer of medical devices for heart valve diseases
2019-12-10	VENUS MEDTECH-B	2500.HK	Prosthetic heart valve developer
2019-11-08	Kindly Medical	1501.HK	Interventional medical device developer

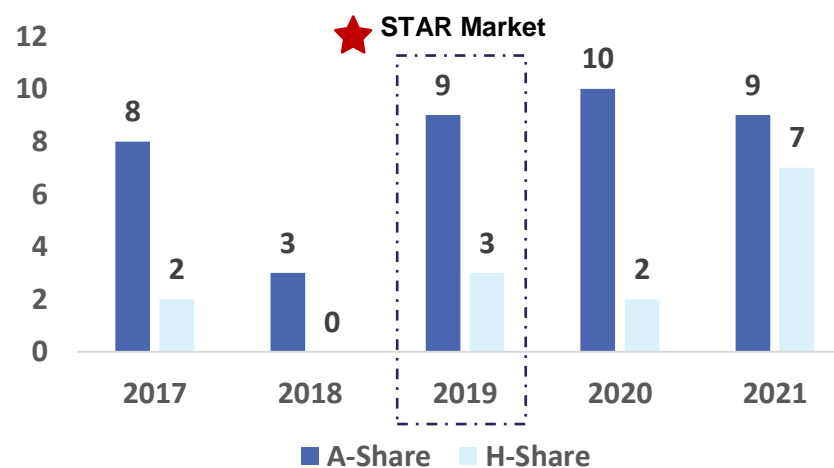
China has seen a robust capital market for Interventional Devices

- Investors have placed a higher valuation on interventional device companies than traditional medical devices in China
- There have been 635 financing events in the medical device sector in China year-to-date in 2021, with total financings completed of approximately \$7.1 bn
- IPO activity is also increasing in both the China mainland A-share market and Hong Kong H-share market, catalyzed by the launch of the Shanghai STAR market

**Private Placements in Medical Devices
in China YTD in 2021**



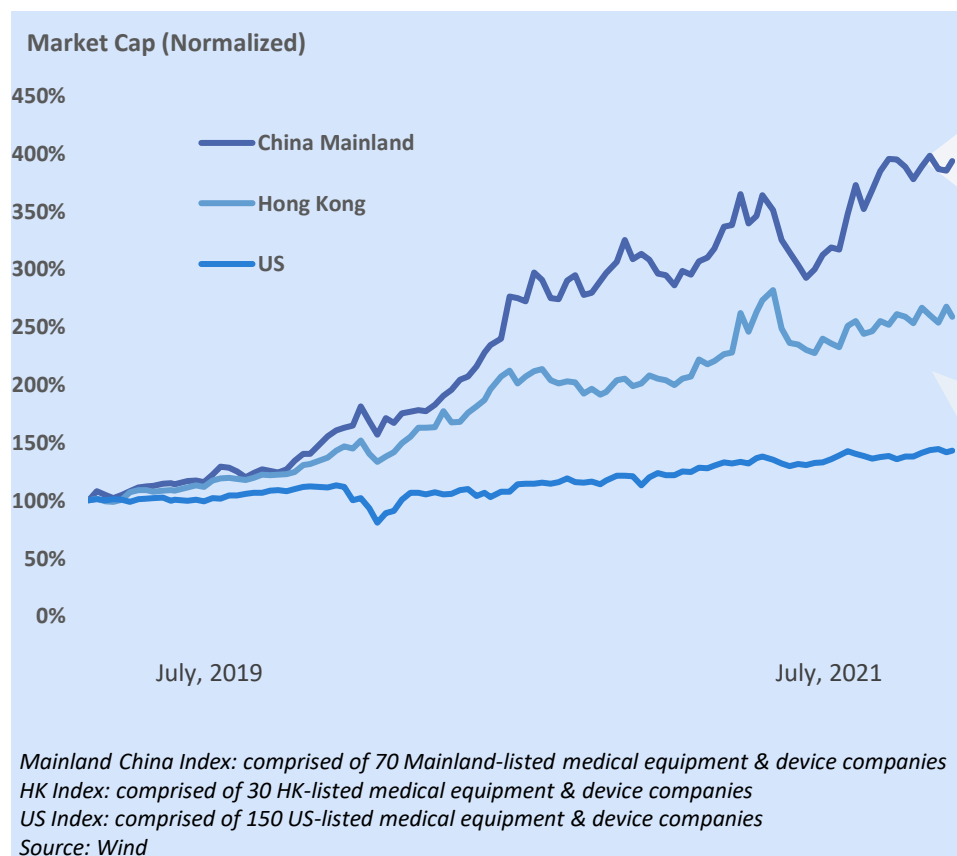
**Launch of Sci-Tech Innovation Board has accelerated
of IPOs in Medical Device sector**



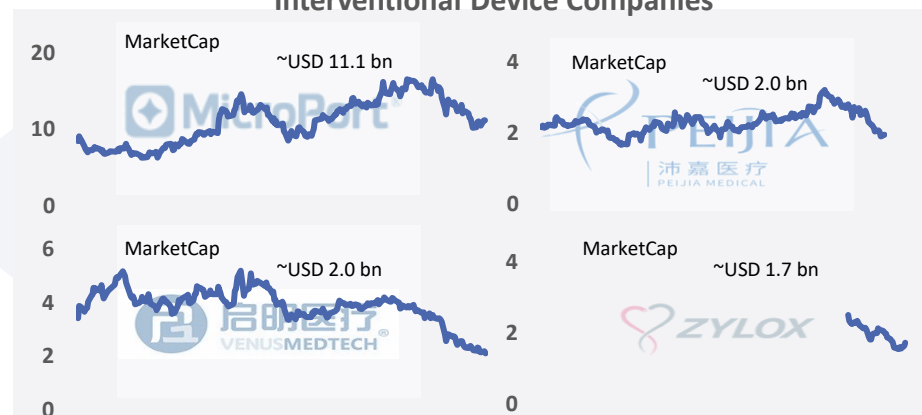
China has seen a robust capital market for Interventional Devices

- Medical device and equipment sector market performance on the China and Hong Kong stock exchanges has significantly outpaced comparables in the US market, despite recent market volatility

**Medical Device & Equipment Sector
Market Performance by Region**



**LTM Stock Performance of HK-listed
Interventional Device Companies**



**LTM Stock Performance of Mainland-listed
Cardiovascular Interventional Device Companies**



NMPA Approvals and Major Financing Events for Coronary Interventional Devices

	Company	Product	Approval Date
Domestic	Peijia Medical	TAVR	2021/6/24
	Beijing Balance Medical	Artificial Heart Valve	2021/4/13
	Microport	TAVR	2019/7/10
	JieCheng Medical	TAVR	2017/4/28
	Venus Medtech	TAVR	2017/4/25
Imported	Abbott Vascular	Xience Alpine Everolimus Eluting Coronary Stent System	2021/3/29
	Medtronic, Inc.	Resolute Integrity Zotarolimus-Eluting Coronary Stent System	2020/12/22
	OrbusNeich Medical, B.V.	Combo Bio-Engineered Sirolimus Eluting Stent	2020/11/24
	Edwards Lifesciences	TAVR	2020/6/5
	Abbott	MitraClip	2020/6/1

USD mm



Last Round	2019 Q2	2021 Q3	2020 Q2	2020 Q2	2021 Q1	2021 Q1
Amount (Valuation)	\$ ~10 mm (\$800 mm)	\$200 mm (N/A)	\$130 mm (\$1.23 bn)	\$151 mm (N/A)	\$100 mm (N/A)	\$70 mm (N/A)
Products available at time of last round	TAVR: NMPA approval TPVR: Registering TMVR: Product design	Microcatheter: NMPA & FDA approval Balloons: NMPA & FDA approval	TAVR: NMPA approval	TAVR: Clinical trial Embolization coil: NMPA approval	TMVR: Clinical trial	Mitral Valve Clamp: Clinical Trial
Revenue at time of last round	\$16.4 mm	N/A	N/A	\$2.7 mm	N/A	N/A
Key Investors	SEQUOIA 启明创投 ORBUS MEDICAL PARTNERS	深圳市创新投资集团有限公司 SHENZHEN CAPITAL GROUP CO., LTD.	Hillhouse Capital CICC 中金公司	Hillhouse Capital Lilly Asia Ventures 礼来亚洲基金	OrbiMed Lilly Asia Ventures 礼来亚洲基金	HLC 弘晖资本 YF CAPITAL 云锋基金

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NMPA Approvals and Major Financing Events for Neurointerventional Devices

	Company	Product	Approval Date
Domestic	Achieva Medical	Neurovascular Embolization Detachable Coil	2021/6/15
	Microport	Embolization Coil system	2020/9/23
	Skynor Medical	Stent Retriever	2021/5/12
	Zylox	Stent Retriever	2020/9/7
	Stroke Care	Stent Retriever	2020/8/12
Imported	Medos International SARL	Detachable Coil	2021/7/15
	Micro Therapeutics	Revascularization Device	2021/3/3
	Stryker Neurovascular	Stent Retriever	2020/11/16
	William Cook Europe ApS	Embolization Coils	2020/7/10
	Neuravi Limited	EmboTrap Revascularization System	2020/4/10

USD mm



Last Round	2021 Q2	2021 Q2	2020 Q3	2020 Q3	2020 Q4	2020 Q4
Amount (Valuation)	Undisclosed (N/A)	Undisclosed (N/A)	\$40 mm (\$500 mm)	\$50 mm (N/A)	Undisclosed (N/A)	\$50 mm (\$300 mm)
Products available at time of last round	Microcatheter: NMPA approval Embolism Spring Ring: NMPA approval	Intracranial Balloon Expansion Catheter: NMPA approval	MT: Registering Aspiration Catheter: R&D	Avenir Coil: FDA approval & CE marked	Under R&D	Drug Coated PTA Balloon Catheter: CE Marked
Revenue at time of last round	N/A	N/A	N/A	N/A	N/A	N/A
Key Investors	KINGTON CAPITAL™ 蘇州民投·翼朴資本		LYFE Capital 源峰资本	SHERPA 信和资本 中信医疗 CITIC Medical Health	Maison Capital 美星投资 SEQUOIA 红杉	OrbiMed Healthcare Fund Management

In the wake of COVID-19, focus has shifted toward decentralizing the healthcare system – POCT expected to see further growth

- Historically PCR tests were processed and analyzed in clinical laboratories
- During the pandemic, point-of-care testing (POCT) became widely used at primary care clinics, emergency departments, and at airports
- Compared to other IVD platforms, POCT has several obvious advantages:
 - Effectively shortens the testing period from sampling to reporting
 - Device footprint small, requiring less space and fewer pieces of supporting equipment
 - Lower level of skill required for technicians
- Risks for POCT
 - Highly commoditized, competitive market
 - Monopolistic share held by international giants in the mid- to high-end segments of the market

Applicable Markets for POCT

Market	Field of Application	Usage Scenarios
Hospital	Emergency Laboratory	Timely provision of inspection information for rescuing patients
	ICU	Provision of real-time laboratory data connecting with physiological monitor
	Outpatient service	CRP test, myocardial infarction and heart failure test, blood glucose test, pregnancy test
	Laboratory	Infectious diseases test, influenza test
Primary care medical institution	Health center, community clinic, physician clinic, etc.	Urine analysis, biochemical test (dry), hepatitis test
Family	Individual	Blood pressure and sugar monitoring
Unforeseen event	Ambulance and other rapid rescue	Myocardial markers and electrolytes test
Clinical application	Pediatric diseases	CRP test, inflammation test
	Cardiovascular disease	Heart failure, myocardial infarction test
	Blood-related diseases	Thrombosis and hemostasis, hemoglobin quantitative analysis and blood cell count, hemorheological analysis, erythrocyte sedimentation rate
		Rapid qualitative test of antigens and antibodies of HBV-5, syphilis and HIV
	Infectious diseases	
	Endocrine disease	Blood glucose, glycosylated hemoglobin and urine microalbumin test
	Febrile disease	Blood routine and CRP test
	Blood biochemical analysis	Dry chemistry, electrolyte and arterial blood gas (ABG), Hs-CRP, cholesterol chip
Birth and child-care	Pregnancy test	ToRCH IgM Combo Rapid Test Cassette
Others	Supervision and law enforcement	Drug control, driving under influence, food safety testing

China's MedTech and Device companies stepping up M&A activity

- Most of the global market leaders in the MedTech and Device segment have grown through a series of acquisitions
- Several factors are driving mergers and acquisitions activity in the MedTech and Device market in China:
 - Market size for one medical device product is typically very limited
 - Given the rapid maturation of technologies and aggressive competition in the MedTech industry, those that undertake M&A often build up competitive advantages for themselves
 - Due to rapid iteration of medical device technologies, companies often use M&A in order to preserve their market leading positions
 - Upstream and downstream integration provides scale, which further provides cost efficiencies and marketing efficiencies
 - Companies that have benefitted from COVID-19 (e.g., high-value consumables makers) have generated significant amounts of cash in reserves that can finance M&A activity
 - M&A activity has picked up recently for targets in the increasingly important primary care market






China-based MedTech and Device Companies to Watch in 2021

Areas of Strong Interest in 2021






- China's MedTech and Devices market is expected to see “hotspots” of significant investment activity in the following areas:
 - Medical robotics
 - Equipment and consumables for cardio- and neuro-interventional treatments
 - Electrophysiology-related surgical equipment and consumables
 - High-value oral and ophthalmic consumables
 - Mass spectrometry
 - Molecular diagnostics
 - Raw materials for IVD reagents

- The following slides provide a brief profile of 25 emerging leaders in “hotspot” categories that will be exciting to watch in 2021






25 China-based MedTech Companies to Watch in 2021

Company Name	Business Description	Latest Financing (USD mm)	Select Existing Investors
 WuXiDiagnostics	Established in 2018, WuXi Diagnostics is China's first company focused on integrated diagnostics. It offers various services including screening and early diagnosis, clinical decision support, and prognosis management enabling its clients to benefit through precision diagnosis and treatment.	Total Raised: \$200.0 Latest Round: Series B \$150.0	Thermo Fisher Scientific Inc., Shiyu Capital, ABC International Holdings Limited, Sunland Capital and CCBI Tech Venture, YF Capital
 MGI 华大智造	MGI, founded in 2016, focuses on the research, development and manufacturing of a series of products such as gene sequencers, complementary reagents, and consumables. It is China's first and the world's third company capable of mass-producing clinical high-throughput sequencers, with operations in more than 50 countries on six continents. Its mission is to "benefit mankind through genomic technologies."	Total Raised: \$1,200.0 Latest Round: Series B \$1,000.0	IDC Capital, CPE Capital, China Renaissance, Huatai Securities, CITIC PE, Goldstone, Orient Securities and Green Pine Capital Partners
 和瑞基因 Berry Oncology	Berry Oncology, founded in 2017 as an affiliate of Berry Genomics, focuses on genomic testing of cancers. It has established a complete system of genomic testing products and services for high-risk populations and patients with tumors. In the field of early tumor screening and diagnosis, the company has launched a series of clinical research projects for early screening.	Total Raised: Undisclosed Latest Round: Series B \$99.0	China Merchants Capital, China Merchants Capital, Fujian Huaxing Venture Capital, Xiamen C&D Corporation, Boyu Capital
 Genesis 健适医疗 Med Tech	Founded in 2019, Genesis MedTech has the widest coverage of surgical and interventional products in China. The company's product line includes surgical products, nerve intervention, cardiac intervention, tumor intervention, peripheral intervention, orthopedics, and dentistry.	Total Raised: Undisclosed Latest Round: Series B Undisclosed	CITIC Capital, General Atlantic
 United Imaging Intelligence	Established in 2017, United Imaging Intelligence (UII) is an AI-enabled healthcare company of United Imaging Healthcare Technology Group providing full-stack AI solutions for imaging, as well as one-stop AI solutions for multiple diseases.	Total Raised: \$514.3 Latest Round: Series A \$514.3	CITIC Capital, CICC Capital, China Life Healthcare Fund






25 China-based MedTech Companies to Watch in 2021

Company Name	Business Description	Latest Financing (USD mm)	Select Existing Investors
	Founded in 2017, Edge Medical is a medical device developer focusing on intelligent robots for minimally invasive surgery. It is one of the few companies that possesses both porous surgical robot technology and single-hole surgical robot technology in China.	Total Raised: Undisclosed Latest Round: Series B \$92	Alwin Capital, BioTrack Capital, CICC Pucheng Investment Co., LYFE Capital, Hangzhou Kangji Medical Instruments
	Founded in 2016, AccuMedical is a neuro-interventional therapeutic platform company specializing in research, development, production and sales of interventional medical devices. The company's product portfolio covers the first domestically-made intracranial blood flow guidance device for intracranial aneurysms and the first domestically-produced aspiration catheter for acute stroke thrombectomy.	Total Raised: Undisclosed Latest Round: Series B1 Undisclosed	Taikang Insurance Group Company, Huagai Capital, Sequoia Capital China, BioTrack Capital, Proxima Ventures (China)
	Founded in 2002, BIOER's core business is the R&D, production and sales of Polymerase Chain Reaction (PCR) instruments, with strong semiconductor refrigerator design capabilities. BIOER is the largest manufacturer of life science instruments in China and the largest PCR instrument production base in Asia.	Total Raised: Undisclosed Latest Round: Later Stage VC Undisclosed	BGI Co-Win, Advanced Micro-Fabrication Equipment, Guangdong HybriBio Biotech Company, Shanghai Free Trade Zone Equity Fund
	CarrierGene was established in 2016 and merged with the US-based NuProbe in 2019. The company provides high-sensitivity and low-cost solutions for reproductive health and tumor diagnosis. CarrierGene's BDA technology can empower qPCR, Sanger, NGS, nucleic acid mass spectrometry and other platforms. The company is the only molecular diagnostic company in China that licenses patents to international market leaders in genetic sequencing.	Total Raised: \$42.0 Latest Round: Series A \$42.0	BioTrack Capital, Shanghai Yonghua Capital Management Co., Ltd.
	Established in 2014, Pushkang Biotech is a company that develops POCT instruments in IVD and reagents based on plate-like microfluidics. Based on its unique "instrument + reagent + plate" centrifugal microfluidic platform, the company has developed product lines of blood coagulation, biochemical, chemiluminescence, and molecular POCTs.	Total Raised: Undisclosed Latest Round: Series C \$15.5	Furong Capital, Hillhouse Capital Group, Sinopharm Capital, YuanBio Venture Capital, Thunderstorm VC






25 China-based MedTech Companies to Watch in 2021

Company Name	Business Description	Latest Financing (USD mm)	Select Existing Investors
 微远基因 VISION MEDICALS	Founded in 2018, Vision Medicals focuses on accurate diagnosis of infections, serving more than 800 clinical organizations. Its metagenomic pathogen detection product, IDseq™, covers more than 18,000 pathogens, and can further carry out multi-dimensional analysis of drug resistance genes, virulence factors, and immune host responses	Total Raised: Undisclosed Latest Round: Series C \$30.9	Tencent Industry Win-Win Fund, CDH Investments, CICC Capital, CASH Capital, Volcanics Venture
 豪恩生物 HEALTH BIOTECH	Established in 2016, Health Biotech is China's first company to achieve a breakthrough in mass spectrometry (MS) detection. The company's technology uses liquid chromatography mass spectrometry techniques to quantitatively detect "ipilin" and screens for the risk of Alzheimer's disease	Total Raised: Undisclosed Latest Round: Series B1 \$31.2	Qiming Venture Partners, Xiamen C&D Corporation, YuanBio Venture Capital, Grand Mount Capital, Shenzhen Qianhai FoF
 瑞莱谱医疗 Reliable Med	Founded in 2019, Reliable Med is a mass spectrometry (MS) platform-based company that provides overall solutions covering MS instruments, reagents, applied methodology and services. Reliable Med is currently the only company in China that independently develops a full line of clinical MS solutions.	Total Raised: Undisclosed Latest Round: Series A1 Undisclosed	3H Health Investment, Huagai Capital, Legend Capital, CDBI Partners
 瀚海新酶 HZYMES BIOTECH	Founded in 2015, Hzymes Biotech is a high-tech company specializing in the R&D, production, application and technical services of special enzymes. Its products cover IVD raw materials, green biocatalytic enzymes, enzymes used in molecular biology, and related technical services.	Total Raised: Undisclosed Latest Round: Series A Undisclosed	Sunz Fund, 3551 China Optics Valley (Government Grant)
 VISION X 艾康特医疗科技	Found in 2019, Vision X provides optometric solutions covering the prevention and control of myopia in adolescents, vision correction and treatment of ocular surface diseases in adults, care products for contact lens, and optical inspection equipment.	Total Raised: Undisclosed Latest Round: Series Pre-B \$15.4	3H Health Investment, Highlight Capital, Green Pine Capital Partners, Hengqin Financial Investment, Fosun Venture Capital Investment

25 China-based MedTech Companies to Watch in 2021

Company Name	Business Description	Latest Financing (USD mm)	Select Existing Investors
 FUSSEN	Established in 2004, Fussen is the world's leading provider of integrated digital dental solutions. With digital dental imaging equipment and SaaS tools, it creates a multi-functional and multi-scenario image data application platform to connect upstream and downstream high-value consumables brands and manufacturers.	Total Raised: Undisclosed Latest Round: Series C Undisclosed	Sequoia China, CICC Capital, Shenzhen Qianhai FoF, Ping An Healthcare and Technology Company Limited
 Sinovation 华科精准 华科恒生	Established in 2015, Sinovation Medical is a leading neurosurgical robotics company in China. It provides precision solutions for minimally invasive surgery in neurosurgery, such as epilepsy, Parkinson's disease, cerebral hemorrhage, and intracranial tumors.	Total Raised: Undisclosed Latest Round: Series B Undisclosed	Hillhouse Capital Group, Northern Light Venture Capital, Medtronic, China Growth Capital, Co-Win Ventures
 华脉泰科	Founded in 2011, Percutek Therapeutics ("Hua Mai Tai Ke") is focused on the R&D and production of vascular intervention devices. The company's products cover a number of limb structures and delivery systems, allowing patients to receive less invasive and risky treatments for cardiovascular diseases.	Total Raised: Undisclosed Latest Round: Series D \$14.5	DYEE Capital, Everest VC, Fulin Venture Capital, Lapam Capital, General Technology Venture Capital
 汇禾医疗 HuiHe Healthcare	Founded in 2019, Huihe Medical focuses on the R&D and production of interventional medical devices for structural heart disease. It has China's first self-developed transvascular tricuspid valve annulus intervention repair system (currently in the clinical trial stage). Meanwhile, it is the only provider of joint repair solution in transvascular mitral valve annulus and leaflet.	Total Raised: Undisclosed Latest Round: Series B Undisclosed	IDG Capital, Legend Star, BioTrack Capital, Guofang Investment
 SAINTS SAGES 圣哲医疗	Established in 2017, Saints & Sages currently focuses on the R&D, production and sales of surgical medical equipment. Saints & Sages' products are widely used in clinical application departments, including gastrointestinal surgery, hepatological surgery, gynecology, urology, gland surgery, and thoracic surgery.	Total Raised: Undisclosed Latest Round: Series A \$18.6	Qiming Venture Partners, TF Capital, Lapam Capital, Northern Light Venture Capital, Highlight Capital

25 China-based MedTech Companies to Watch in 2021

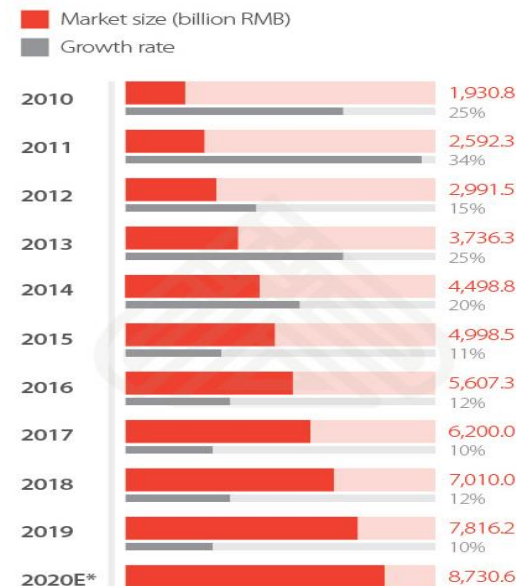
Company Name	Business Description	Latest Financing (USD mm)	Select Existing Investors
	Established in 2005, Synaptic Medical is a leading cardiac electrophysiology company, primarily focused on tachyarrhythmia-related diseases such as atrial fibrillation. Up to now, its products have been sold to nearly 800 hospitals in 31 provinces across China and exported to the United States, Japan, Europe and other countries and regions.	Total Raised: Undisclosed Latest Round: PE Growth \$60.0	Huagai Capital, YuanBio Venture Capital, Medtronic
	Founded in 2017, Changmugu is the only company globally that provides a full orthopedic artificial intelligence solution. The company's core products include the world's first AI JOINT intelligent surgical planning system, intelligent 3D printed surgical stent, unique navigation system, and surgical robot system.	Total Raised: Undisclosed Latest Round: Series Pre-B \$18.5	Oriza Holdings, YuanBio Venture Capital, Ether Capital, Qihang Capital, Lenovo Capital and Incubator Group
	Established in 2016, Union Strong is a developer of neuro-invasive medical devices and software specializing in the research and treatment of diseases in the human nervous system. Its products cover AI intelligent assistance for the entire diagnosis and therapeutic process of multiple diseases including hemorrhagic and ischemic strokes.	Total Raised: Undisclosed Latest Round: Series B1 Undisclosed	BioTrack Capital, Lenovo Capital and Incubator Group, YuanBio Venture Capital, Chiron Ventures, Sunland Fund
	Launched in 2015, Insight Lifetech offers precise interventional diagnosis and treatment in coronary heart disease, peripheral vessel, and heart rhythm. It has independently developed and produced a pressure microcatheter and a direct FFR measurement equipment product. Both have been NMPA and CE certified.	Total Raised: Undisclosed Latest Round: Series C \$27.5	Qiming Venture Partners, Efung Capital, Green Pine Capital Partners, Lotus Lake Ventures, SDIC Unity Capital
	Founded in 2011, Neuracle is a leader in the brain-computer interface (BCI) space. It is committed to offering solutions to innovative research in neuroscience and clinical neurological disease diagnosis, treatment and rehabilitation research.	Total Raised: Undisclosed Latest Round: Series B \$15.4	Sequoia Capital China, Baidu Ventures, Qihang Capital, Tsinghua Holdings Capital, Zhongguancun Development Venture Capital Fund

Overview of China's Healthcare Market

China's healthcare industry currently leads the world with double-digit growth rates and the second-largest healthcare market in terms of spend

- China's health care sector only began privatizing in the 1990s, but it is already the world's second largest pharmaceutical market and healthcare market overall
 - While estimates vary on the size of China's healthcare industry, market observers generally size the market at RMB 8-9 tr (USD 1.3-1.4 tr) in 2020.
 - This includes the pharmaceutical market at RMB 2.5 tr (USD 390 bn), medical devices and diagnostics at RMB 1 tr (USD 160 bn), and medical services and health tech at RMB 4.5-5.5 tr (USD 700-860 bn).
- Health care expenditures in China have grown at a staggering 20% annualized rate since 2003, with 35% of all health care spending coming from out-of-pocket expenses*
 - Healthcare spend in China represents just 8% of total consumption. By comparison, health care spend in the US represents over 22% of consumption expenditure
 - China's healthcare spend is expected to more than double as a % of GDP, particularly as China's seniors begin transferring their wealth to sole children and concentrating greater wealth within a more consumption-oriented generation
- If the fast-growing elderly care market is also included, China's healthcare industry is projected to be worth over USD 5 tr in 2030
 - Average annual growth rate of 10%+ over the next decade
 - Among the only healthcare markets of size and scale in the world growing at double digit rates

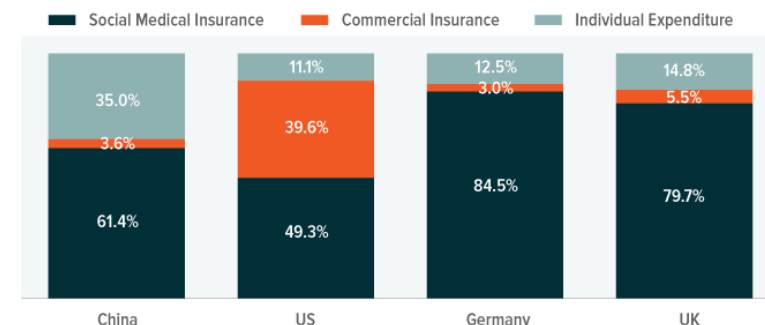
China's Healthcare Market Size (2010-2020)



Note: * Estimated figure for 2020 | Source: Open source reports

MEDICAL EXPENDITURE IN CHINA VS. US, GERMANY, AND UK

Source: World Health Organization and Ernst and Young as of Apr 13, 2018

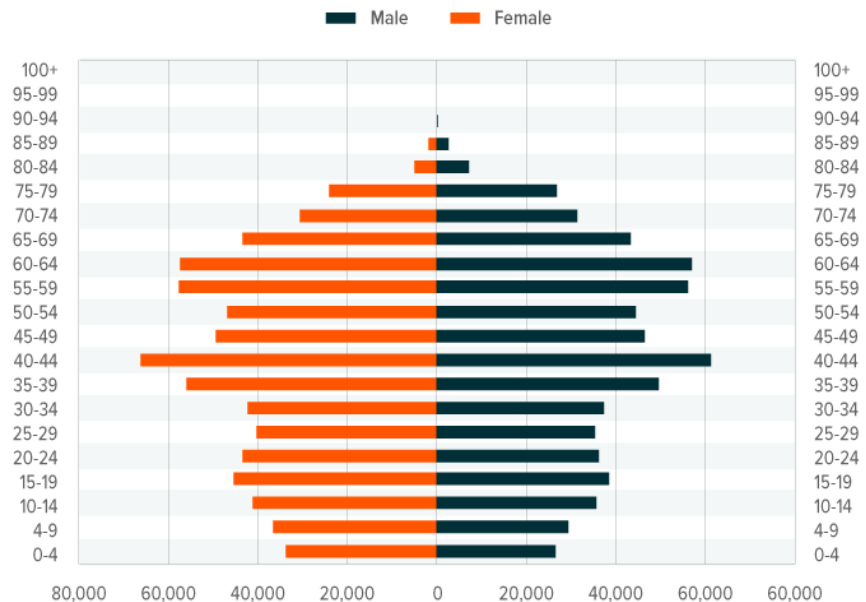


* Source: CFR, "China's Healthcare Sector and US-China Health Cooperation," May 11, 2016

Long-term demographic trends support growth of China's healthcare sector

- Over the long-term, China's growing wealth and aging population are expected to play a large role in powering the 10-15% annual growth in healthcare spend estimated by analysts
 - According to the latest census results released by the Chinese National Bureau of Statistics, the population of people aged 60+ has reached 260 mm (18.7% of total pop.). By 2027, analysts expect the aged 60+ category will increase to 324 mm and double to 500 mm+ (40% of total pop.) by 2050*
 - Prevalence of chronic diseases and disability among the elderly is high, exceeding 180 mm patients with chronic diseases and 40 mm with disabilities
 - Non-communicable diseases accounted for 71% of total deaths among the elderly, led by cardiovascular and cerebrovascular diseases, cancers, chronic respiratory diseases, and diabetes, all of which involve long and expensive treatment courses**
 - Meanwhile, China's newborns dropped sharply from 17.6 mm in 2017 to 10 mm in 2020. Newborns in China are expected to fall below 7 mm by 2025. Analysts predict that by 2050, the number of deaths each year will be 10 times that of newborns

POPULATION HISTORY AND PROJECTIONS FOR CHINA 2027 (IN THOUSANDS)



- Growing per capita income of China's younger populations due to rising wages and the generational wealth transfer impact of China's one child policy has meant the cost of specialty drugs, biomedical devices, and services for aging relatives will increasingly fall on their shoulders – creating opportunities for a growing elderly care market

Sources:

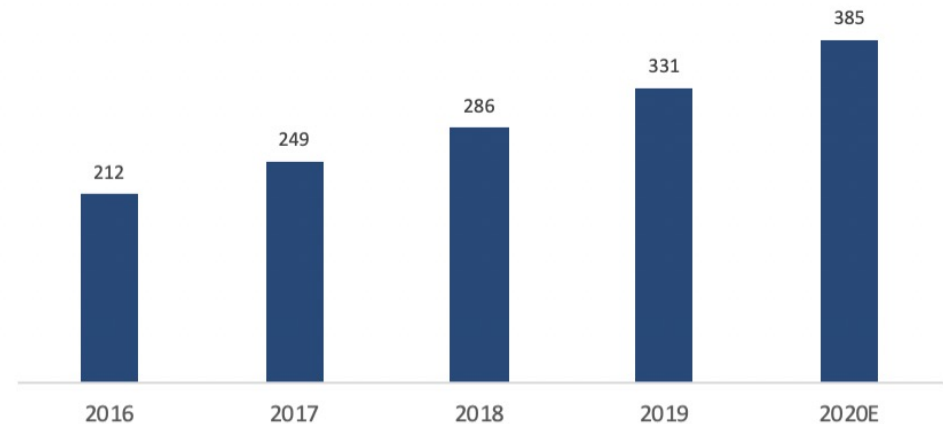
* CSIS, "Is China's health care meeting the needs of its people?" March 14, 2019

** WHO, World Health Statistics 2020

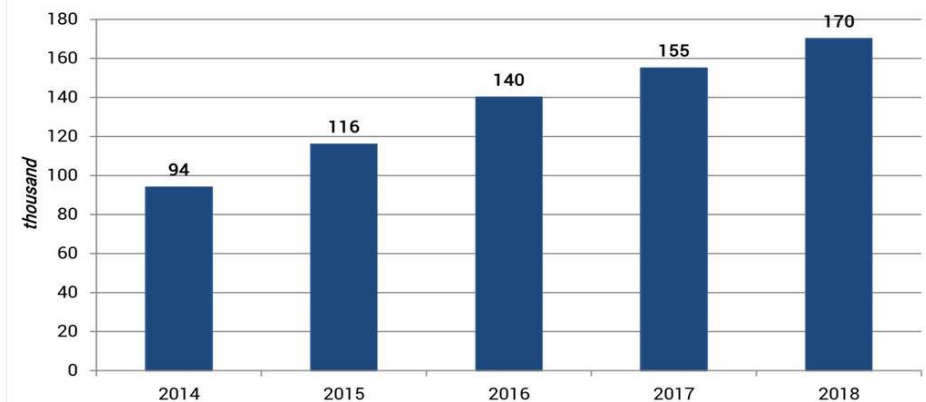
Elderly healthcare market in China to grow significantly over the next decade

- An aging population will bring two opportunities to China's healthcare industry
 - The rapid increase in the elderly population and social need for affordable, high-quality healthcare services will lead to a surge in demand for such services along with ancillary needs
 - China's future age structure will force more families to shift from supporting the elderly by themselves to entrusting the care to professional agencies and personnel. This will in turn expand the market share of elderly care services within the overall healthcare market
 - Such services include home health and personal care, skilled nursing, long-term and hospice care, physical / occupational therapy and rehabilitation, and social services
- Furthermore, with an increase in per-capita disposable income, healthcare services focusing on anti-aging; wellness and longevity; and quality-of-life improvement for the “newly” elderly present a vast market opportunity
 - Anti-aging cosmetics, beauty, personal care products and consumer devices, as well as aesthetic services are also expected to grow significantly in the future

Market size of the elderly care in China
(billion RMB)



The number of nursing homes in China
(thousands – 2014-2018)

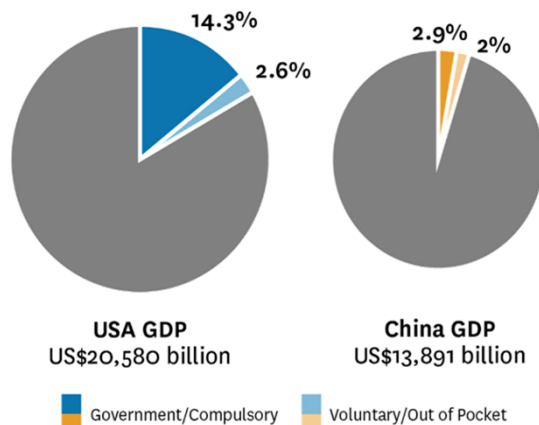


Source: Forward-The Economist
<https://www.qianzhan.com/analyst/detail/220/190130-56f185e1.html>

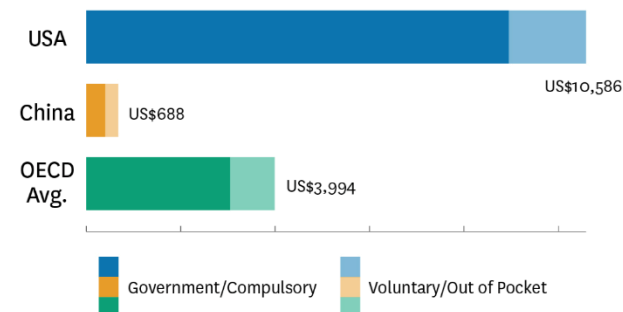
China healthcare spend to increase as it converges with developed market norms

- While estimates vary, China's healthcare costs remain relatively low as a % of its GDP though this is expected to more than double as healthcare spend converges with developed market levels
 - The US market leads the world in healthcare spend accounting for at least 17% of its GDP
 - China's healthcare costs ranges from 5-8% of its GDP, still relatively low as compared to the US and other developed countries
- In terms of per capita spend, China's healthcare costs are less than 10% of that seen in the US, while at the same time out-of-pocket contribution as a % of overall costs is significantly higher
 - Per capita spend is expected to rise as China's healthcare consumers demand greater coverage and quality of services
 - Over time, out-of-pocket contributions are expected to trend towards developed market norms as the government promotes measures to increase funding for basic universal coverage, control drug pricing, and stimulate competition
 - Private supplemental insurance expected to grow rapidly as an increasingly affluent middle class seek access to higher quality care

HEALTH COSTS OF GDP 2018



HEALTH COSTS PER CAPITA 2018



*Source: USC U.S.-China Institute; data from JHU CSSE & OECD

Structural considerations driving demand for private supplemental insurance in China

- China's health insurance system more closely resembles Germany's national social health insurance system than it does the US commercial health insurance market
 - Supervised at the national level and guided by the principle that citizens are entitled to receive basic health care; however, local governments are ultimately responsible for funding and implementing health services
- Given this local funding structure, and because China's household registration system ("hukou") determines eligibility for services according to birthplace, public coverage and quality varies widely from region to region
 - Because of budget constraints, public health insurance offers wide but shallow coverage for drugs and services, creating demand for private insurers to supplement public insurance regimes
 - Such deficiencies, along with a shortage of doctors and an increasingly health-conscious population will drive China's health insurance market to grow quickly beyond what is already an estimated \$200 billion market (in terms of premium income)*

Country	China	Germany	UK	US
Health Care System	Local Social Health Insurance	National Social Health Insurance	Universal Health Care	Commercial Health Insurance
Features	<ul style="list-style-type: none"> ■ Local social health insurance ■ Fees paid by local governments and individuals, regulated by government ■ Growing awareness and emphasis on market rather than government provision of social health insurance 	<ul style="list-style-type: none"> ■ Wide coverage ■ Fee partially paid by citizens, regulated by government ■ Emphasis on market rather than government provision of social health insurance 	<ul style="list-style-type: none"> ■ Wide coverage ■ Heavy burden on government, which funds hospitals through tax appropriations. Services to residents are free of charge or very low cost ■ Emphasis on social equity, lack of market mechanism 	<ul style="list-style-type: none"> ■ Narrow coverage ■ Lighter burden on government, strong market mechanism ■ Individuals obtain insurance through employers or individually

Private supplemental insurance a key driver behind future growth in healthcare expenditures

- As prevalence of private insurance grows in the China market, high end medical treatments, and even regular checkups are all expected to increase rapidly from their current low bases
 - While the government provides nearly universal health coverage for low-end services, private health insurance offers more comprehensive coverage
 - Still, private health insurance coverage remains in just the single-digits % of population currently. Similarly, penetration rates for sophisticated services like radio-therapy remains in the teens
- China's government is seeking to expand health coverage with its "Healthy China 2030" plan
 - Bringing clinics and hospitals to smaller cities / rural areas to increase coverage
 - Reducing labor shortages of doctor/nursing staff and implementing more competitive pay policies
 - Reducing individual out-of-pocket % of spend, which is much larger than in other markets such as the US, UK and Germany
 - Fostering support of private insurance market to aid in accessibility of higher quality services

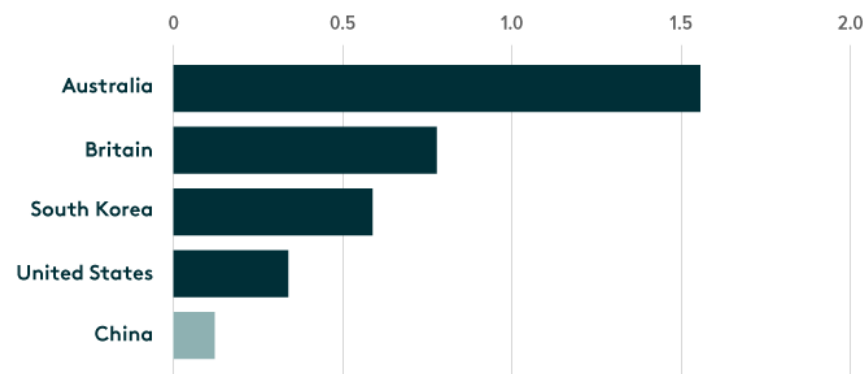
NUMBER OF HEALTH CHECKS IN CHINA (IN MILLIONS)

Source: The Year Book of Health in China, AsICI, Bloomberg Intelligence as of Mar 26, 2019



GENERAL MEDICAL PRACTITIONERS (PER 1000 PEOPLE)

Source: The Economist. OECD; Wind Info



Data to play a pivotal role in China's future healthcare economy

- Leveraging big data is an important strategic priority of the government's "Healthy China 2030" plan

- This data covers the entire life cycle of a person, including the aggregation and processing of data related to personal health, medication and pharmaceutical, disease prevention and control, food safety, and public health

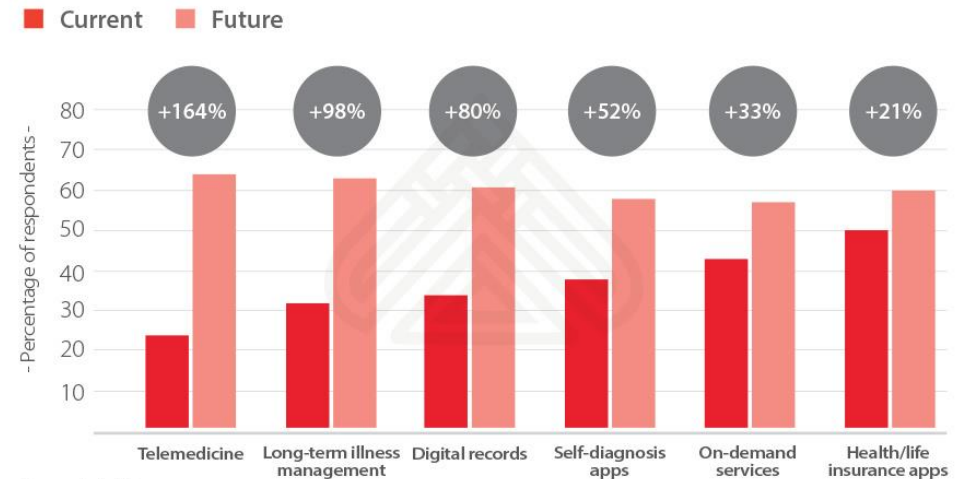
- Consumers are demanding more personalized and higher quality health care

- Demand for more personalized care reflected in the proliferation of private dental and pediatric clinics, and greater availability of radio-, chemo- and gene-therapies
- Related to this is the growth of online services, including virtual doctor appointments and e-commerce solutions for insurance, devices, and drugs, which both depend on and generate the data needed for personalized medicine

- The future of the healthcare industry will be integrally involved with the country's technology, service, and manufacturing industries

- Companies like Alibaba and Tencent are applying their tech expertise to the healthcare industry by providing services like WeDoctor to optimize hospital and clinic management, drug and medical device distribution, and medical equipment maintenance
- Many health-tech efforts are AI-based to take advantage of China's deep data pool with 1.4+ billion people and its comparatively lax regulatory environment encouraging advancements in AI

Chinese patients expect to use more digital services within the next five years

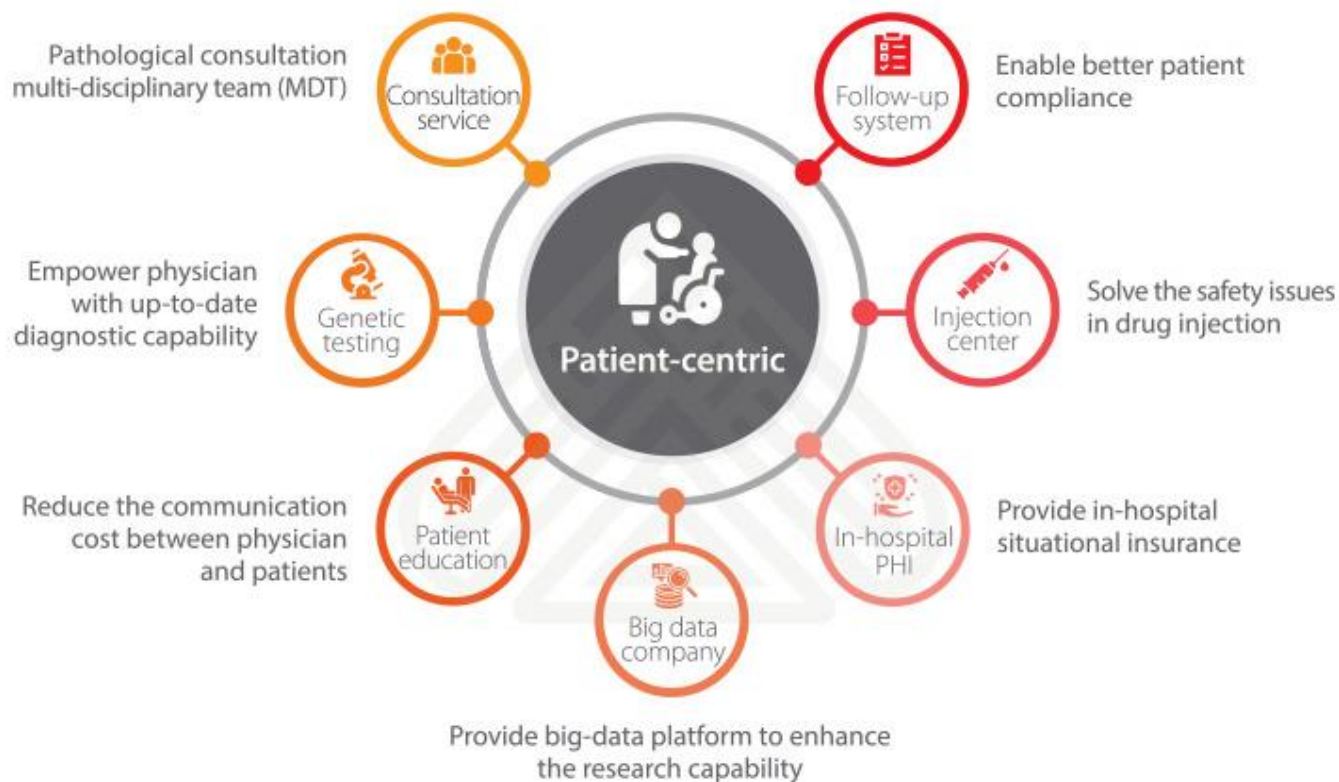


Boundaries between market segments are becoming increasingly blurred

- As collection and use of healthcare data becomes widespread, easily used, and self-reinforcing in a continuous closed loop, boundaries between segments of the industry will become increasingly blurred, with increased integration between testing and diagnosis, provisioning of medical drugs, and health management
 - As technology and the understanding of diseases continue to advance, tools such as gene sequencing will inevitably involve larger amounts of clinical and genetic data both domestically as well as globally, leading to the integration and cross-border development of multiple “-omics” (e.g., genomics, transcriptomics, proteomics, or metabolomics)
 - Enterprises have shifted towards an R&D strategy focused on comprehensively utilizing different types of products and technical means to meet clinical needs
 - In the future, insurance will become a critical factor affecting healthcare expenditures, including identifying effective treatment plans from reviewing multi-dimensional scenarios and leveraging big data analysis to facilitate early screening and diagnosis of diseases in order to maximize the effectiveness of preventative treatments
- The healthcare industry in China is far from realizing a “closed loop” of the industry; however, there is long-term confidence in the formation of a data loop between China's healthcare industry and insurance market
 - Even after the formation of a closed loop, social insurance will still play a pivotal role, while commercial insurance remains supplemental to help meet specific needs of specific groups of people
 - China’s private health insurance market will continue to play a large role in the future development of the healthcare industry; however, the role of insurers in the market will differ significantly from what has been seen in the US market
 - Private health insurance in the US has been driven largely by corporate employers and legal requirements to provide insurance for employees in addition to tax-funded “social insurance” programs such as Medicare and Medicaid
 - China’s social insurance programs and public hospital system are government-funded and expected to be supplemented with the emergence of private insurance offerings designed to provide individualized coverage, ultimately hinging on the use of data

With strong policy and industry support, China's healthcare industry is better positioned than most in developing a closed loop system

Healthcare market in China moving towards a patient-centric
“Digital Health + Drugs + Insurance” closed-loop model



Source: Deloitte's Six Predictions for 2020 –
China's Pharmaceutical & Health Care Report (February 2020)

China's healthcare industry has benefited from strong policy support at all levels of government and across multiple regulatory agencies

- Changes at the policy level have made China's healthcare industry a national priority, including the "Healthy China 2030" plan in August 2016 and the "Basic Medical Care, Hygiene and Health" law in June 2020
 - The government's 14th Five-year Plan issued at the end of 2020 set forth plans for improving the [country's] multi-pronged social security system, comprehensively promoting the development of a healthy country, and implementing a national strategy for addressing an aging population
 - New policies to be introduced in the future will focus on supporting the following five themes: (1) healthcare accessibility and coverage for the populace; (2) cost reductions and price controls and the provisioning of basic medical insurance; (3) novel, homegrown IP and technologies, (4) healthcare supply chain restructuring to improve efficiency, and (5) the growth of the capital markets and commercial healthcare insurance market
- Various national healthcare commissions and regulatory agencies issued a series of supporting policies in the wake of COVID-19 that are likely to have a lasting impact
 - In March 2020, the National Healthcare Security Administration (NHSA) and the National Health Commission (NHC) jointly issued policy guidance on "Internet Plus" Medical Insurance Services for the prevention and control of COVID-19 during the pandemic in an effort to support the delivery of healthcare services online
 - In November 2020, the NHSA issued policy guidance on Medical Insurance Payment for "Internet Plus" Medical Services, clarifying that online medical services provided to patients with chronic and special diseases would be reimbursable through basic medical insurance
 - In February 2020, in the early days of the pandemic, the National Medical Products Administration (NMPA) opened a channel for emergency approval of certain medical devices (10 AI-driven medical device products obtained Class III certification in 2020)
 - In July 2020, the NMPA adopted new administrative policies for drug registration to better align with the clinical trial application review and drug approval process of the FDA in the US

COVID-19 has accelerated the use of online health services and is expected to create long-lasting impact on the industry

- Internet health platforms have seen significant usage and adoption in the wake of COVID-19
 - In the early days of the pandemic in March 2020, online diagnosis and treatment at hospitals administered by China's National Health Commission grew by 17x compared with the same period last year; diagnosis and treatment consultations on third-party online service platforms increased by over 20x y-o-y; and, the number of online prescriptions grew nearly 10x
 - Online hospitals also grew rapidly. According to data reported by the State Council Information Office in China, by October 2020, over 900 online diagnosis and treatment hospitals were in operation – 9x the number in 2018. In addition, telemedicine collaboration networks now cover over 24,000 medical institutions in all prefecture-level cities, and over 5,500 hospitals provide online services
- Online health consultations more than doubled as a % of total consultations in 2020
 - Expected to make up over half of all consultation sessions in the next 5 years



Source: Frost & Sullivan, CLSA. Data as of January 2021

COVID-19 has brought global attention to China's domestic vaccine and medical equipment industries

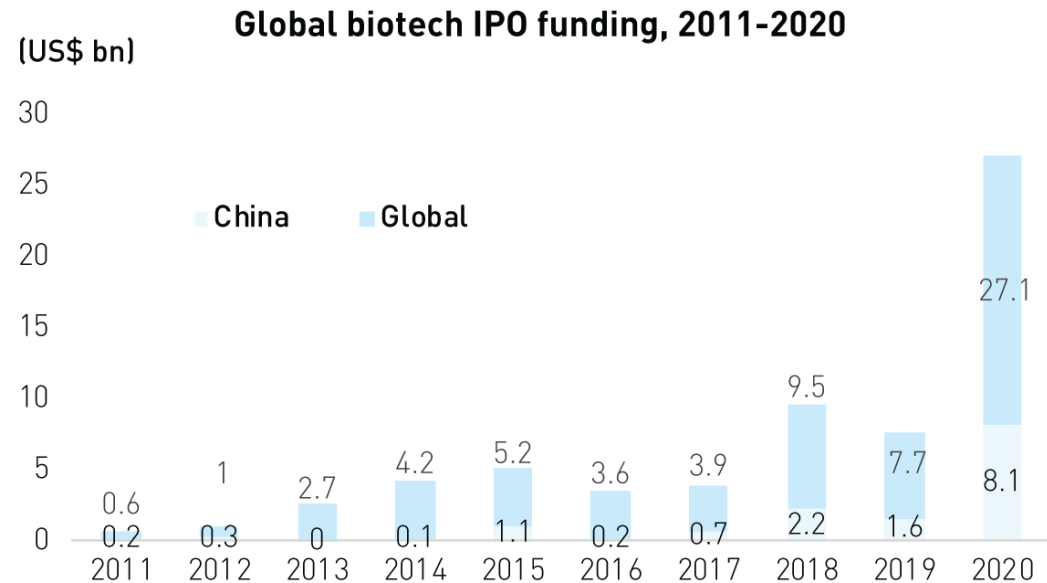
- The pandemic brought global attention to China's domestic vaccine industry
 - To date, over 130 mm doses of COVID-19 vaccines produced by domestic China players have been administered, and another 100 million doses have been exported globally
 - Various firms in China are involved in the construction of vaccine production facilities as well as suppliers of biologically active materials used in COVID-19 vaccine production. Of 18 COVID-19 vaccines for which WHO EUL has been applied, 7 are from China
- COVID-19 also shone a light on China's domestic ventilator manufacturers
 - The global stock of ventilators excluding China is about 430,000, but the number of ventilators needed abroad to cope with the pandemic is at least 1.33 mm, leaving a gap of 900,000. Since the recent COVID-19 flare-up in India, China has exported more than 26,000 ventilators and oxygen concentrators
 - Production capacity of ventilators is mainly limited by the supply of upstream parts, such as turbofans and chips. In the wake of the pandemic, domestic producers will likely work to reorganize their supply chains and look for part suppliers domestically, which will result in a revamping of the domestic ventilator industry

Capital markets have facilitated growing investment in China's rapidly developing healthcare industry

- With the rapid growth of China's healthcare industry and strong government support, domestic investors in China and foreign investors overseas have begun to focus on China's healthcare market, setting off an unprecedented wave of investment
- The Hong Kong Exchange and the Shanghai Stock Exchange (SSE) STAR Market have played a very important role in driving the growth of the capital markets for investment in China's healthcare industry
 - Relaxation of HKEX IPO listing rules (Chapter 18A) for pre-revenue biotech companies since April 2018 has resulted in a growing wave of China-based biopharma and healthcare company IPOs over the past 3 years. 146 enterprises saw IPO listings on the HKEX in 2020; among them, 23 were in healthcare, accounting for up to 16% (vs 7% in 2018). Total funding raised from IPO listings was close to HKD 100 bn (USD 13 bn), which is 3x that of 2018
 - The SSE STAR Market launched in 2019 has recently become a popular IPO destination for healthcare companies (especially, drug developers) in China. Since launch, healthcare has accounted for nearly one-fifth of the total number of IPO listings on the SSE STAR Market. In 2020, a total of 29 healthcare companies listed on the SSE STAR Market, raising a total of RMB 50 bn (USD 8 bn)
- Robust IPO markets on the HKEX / SSE STAR Market and renewed importance placed on the sector, in part triggered by COVID-19, has driven growth and VC investment in China's healthcare sector
 - In 2020, a total of 470 financing events occurred in the primary market of China's healthcare industry, with an aggregate financing amount of RMB 162.7 bn (USD 25 bn), up 58% y-o-y
 - The number of institutions investing in the healthcare industry has grown rapidly, and funds that previously focused on TMT investment have begun to quickly build out capabilities in investing into the sector
- The capital markets for China's healthcare industry is expected to continue to grow rapidly as it plays a growing role in supporting the development of the industry

China's healthcare market saw a record year of biotech IPO funding in 2020

- The shift from a generic healthcare model within China to an industry focused on innovation and competition supported by government policy has become increasingly attractive to global investors and pharmaceutical MNCs
- Foreign investor interest in Chinese biotechnology IPOs has resulted in USD 8.1 billion in new funding in 2020 alone along with strong VC and PE investment
- A growing number of Chinese biotech companies are building partnerships with global pharmaceutical MNCs to develop and commercialize innovative drugs in new markets
- In addition, 2020 witnessed a surge in licensing-out deals with foreign and multinational firms, indicating the growing global demand for drugs produced in China
- China's rapidly aging population among its 1.4 billion citizens has been the key driver behind increased investment in the market, along with increased disposable income across the population



Source: Bloomberg CLSA. Data as of January 2021

New Developments within the Chinese Healthcare M&A Landscape

- China's healthcare industry is further broadening product lines and expanding its exposure to other parts of the value chain through M&A integration
 - This is due to the issuance of new industry regulations and changes in policies such as (1) adjustments of China's medical insurance payment structure and medical insurance catalog, (2) consistency evaluations of generic drugs, and (3) normalization of centralized procurement
 - We believe only pharmaceutical and medical device companies with broad product portfolios can withstand the risk of sudden declines in gross profits from single product pipelines
- We see two related trending opportunities:
 - Medical insurance negotiations and "volume-based procurement" have caused many multinational companies to lower their expectations for future profits from certain products in the Chinese market
 - Such companies are more willing to divest and sell businesses related to such products, while adding new product lines with potential profitability through acquisitions
 - Many start-ups with single products have obvious disadvantages in pricing power and cost control, leading them to sell their companies under market pressure

Emergence of New Biopharma Startups and Financial Buyers

- Due to the secondary market, valuations in the primary market for the healthcare industry in China has continued to rise in the last few years, resulting in abundant cash reserves and high valuations for biopharma startups, despite still being under Phase II and Phase III clinical trials
 - Companies are using M&A to broaden their product pipelines or strengthen R&D and sales capabilities
 - Biopharma startups may choose to merge or acquire traditional pharmaceutical enterprises after obtaining a large amount of financing
- In recent years, capital concentration within top institutions has become more pronounced
 - Funds raised of top GPs has increased dramatically, incentivizing them to pursue larger buyout transactions. Traditionally, M&A in China's healthcare industry has been dominated by large corporate groups and listed companies, but today financial buyers have joined their ranks
 - The participation of financial buyers will make the M&A market more active since financial buyers are better equipped to help invested companies integrate into the market through: (1) subsequent M&A, (2) rapidly expanding revenue scale, and (3) broadening product pipelines
 - Unlike strategic buyers, financial buyers usually have clear investment horizons with a need to exit through M&A if the invested companies cannot be listed after holding them for a period of time

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