

China MedTech – Path to a global leading market

November 11, 2020



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8 Booming digital partnerships



3 Deepening health system reform



6 Emerging local MedTech





1. The next normal is emerging as China's economy recovers from COVID-19

Economic growth showing signs of rapid recovery

Quarterly GDP growth of major economies¹



The next normal is emerging in the wake of COVID



Sustained economic and geopolitical tension

Deglobalization and challenging dynamics are likely to persist



Dual circulation

China aims to expand and upgrade consumption and encourage domestic investment while deepening the "opening up" policy



Localized supply chain Large-scale nearshoring

Large-scale nearshoring spurred by supply chain complexities



Healthcare spending under pressure

Budget negatively impacted, with allocation shifting towards public health



Rise of virtual demand

Rapid development of homebased services, remote work, and gig economy



Decentralized healthcare services

Community and remote care enabled by data and digital offerings

1. Percentage change compared to same period previous year

2. "Dual circulation" is becoming the new development pattern with splintering of US-China relations

Non-exhaustive

Splintering US-China relations with focus on technology and trades



The central government advocates the dual-circulation development pattern to drive growth with a focus on domestic economic circulation



3. China's public health system is evolving along three key themes



A

Strengthening disease control capabilities

Strong emphasis from the central government

"" Only by developing a strong public health system, improving early warning and response mechanisms, comprehensively enhancing the capacity for prevention, control and treatment, weaving a tight prevention and control network, and consolidating the wall of quarantine, can we provide a strong guarantee for safeguarding the people's health.

– President Xi, June 2, 2020

City-level implementation

Shanghai to become one of world's safest cities in terms of public health by 2025

B

Decentralizing functions & resources

Basic Healthcare and Health Promotion Law took effect June 1, 2020, empowering grassroots

C

Improving efficiency and reducing cost

National volume-based procurement (VBP) of drug eluting stent has finished tendering, while 29 provinces has initiated regional-level VBPs on consumables

DRG payment simulation run in 30 pilot cities by 2020, and some to start in 2021



4. Before the pandemic, patient flow was concentrated in large public hospitals but gradually shifting towards smaller cities



Private hospitals contribute about 18% of inpatient flow (not shown), and are growing at 15% annually, faster than public hospitals

1. Including unclassified hospitals

4. High-value consumables are still concentrated in large public hospitals



Private hospitals contribute less than 5% of PCI procedures

4. The private sector has become the growth engine for capital equipment



1. Including unclassified hospitals

4. Post-COVID, overall patient flow has nearly recovered, with a shift to private and lower-tier public hospitals



4. Internet hospitals and online pharmacies grew faster during COVID-19



Internet hospitals

215 new internet hospitals were established in 1H 2020, a roughly 40% rise, reaching a total of about 580

We expect consultations to increase at about **40% annually by 2025**, supported by favorable policies, esp. after COVID-19

"Internet+" will be a pillar for healthcare in the **14**th Five Year Plan¹



Telemedicine reimbursement

The central government encourages basic medical insurance (BMI) expansion to telemedicine, with pilots in Guizhou, Sichuan, Jiangsu, Ningxia. **In Guizhou, 70-85% expenses** can be covered

Since Feb 2020, NHSA/NHC accelerated BMI to select diseases in internet hospitals; more than 10 cities have implemented the plan, including Tianjin and Yinchuan



Online channels

Online channels contribute about 16% of revenue for homecare medical devices and consumer health today. We expect the share to grow to 35% by 2025

JD Pharmacy achieved year-on-year sales growth of about 270% in 1H 2020

1 互联网诊疗管理办法;关于加强信息化支撑新型冠状病毒感染的肺炎疫情防控工作的通知;关于在疫情防控中做好互联网诊疗咨询服务工作的通知;关于推进新冠肺炎疫情防控期间开展"互联网+"医保服务的指导意见;关于积极推进"互联网+" 医疗服务医保支付工作的指导意见;十三五卫生健康事业改革发展情况发布会暨十四五医疗行业重点任务透风会

5. Mounting price pressure in MedTech

Details on next page

Government tenders

Centralized government tenders significantly reduce prices through measures including VBP, the "online sunshine" platform, provincial alliances and national negotiation.

Pricing transparency and data integration have improved, giving stakeholders access to the lowest price across brands and regions.



Volume based procurement (VBP)

VBP is being implemented in a drug-eluting stent at the national level, and a wide range of high- and low-value consumables at the city or provincial level, with price cuts of 50-80%.



Hospital-level spending control

The government has implemented measures to contain hospital spending, including diagnosis-related group (DRG) price cuts in medical services such as diagnostic imaging, and capping the growth of total annual BMI spending, ratio of medical consumables, etc.



Price controls on medical services

Especially on fees for diagnostic imaging equipment, with reductions from 5-20%. Examples include a 20% cut in Wuhan in 2020, 6% in Zhongshan in 2019, and 20% in Shenzhen in 2016.

5. Substantial price cuts in VBP for select medical consumables





Cardiovascular and drug delivery are the top categories for VBP A total of 63 products are included in provincial and city-level VBP announcements

More than 60%

average cut in hospital price

1. Count as one province if VBP announced for the product at provincial, city alliance, or city level (each province can be counted no more than once)

2. High value: avg tender price of more than 1,000 RMB before VBP

Sources: VBP government announcements, McKinsey analysis

5. VBP execution in MedTech is more complex than in pharma

Considerations for MedTech VBP product inclusion



Total spending by hospitals (e.g., high unit value, high-volume consumables)¹



Number of players offering the product¹, especially locals



Ease of VBP execution in tender and procurement, such as number of SKUs, open system

Unlike QCE in pharma VBP, lack of effective quality assessment measures in MedTech VBP

1. Notice by the State Council on the reform plan for controlling high-value medical consumables (国务院办公厅关于印发治理高值医用耗材改革方案的通知)

Details on next page

Estimated share of market value subject to VBP

MedTech

<5%

of MedTech market is exposed to VBP **today**

Pharma

20%

of pharma market is exposed with 110 molecules **today**

15-25%

of MedTech market might be exposed to VBP **in 3 years**

70%

of pharma market might be exposed with more than 500 molecules **in 3 years**

5. 15-25% of MedTech market might be exposed to VBP in 3 years

Level of VBP exposure

Low High

None

China MedTech market size by product segment

(billions of US dollars, 2019; at ex-manufacutring price; example products)

	15-25% to VBP in 3 ye	of market exposed		nated impact on total t size in 3 years ¹
0%	0%	~5%	50-70%	20-30%
esthesia and respiratory quipment	monitor Oxygen concentrator	Molecular diagnosis (incl. NGS)	Orthopedics Intraocular lens (IOL) Endoscopy	Personal protective equipment (PPE) Hospital supplies
CT, MRI, ultrasound Patient monitor	Glucose monitor Blood pressure	Immunoassay Clinical chemistry	consumables Cardiovascular	consumables Drug delivery system
Capital equipment	Home use	IVD	High-value	Low-value
15	8	12	13	12

1. Assuming 50-70% of price cuts at to-hospital price level, and 1/3 to 1/2 of which cascaded to manufacturer level (rest to distributors)

6. Leading local MedTech players are growing fast

Leading local MedTech achieved faster growth in '20 H1

Global revenue growth of top 20 public MedTech companies¹



1. 2019 top 20 public companies on all exchanges

2. 13 of top 20 local companies have Q3 data published

3. Medtronic, BD, Siemens Healthineers, Stryker, J&J Medical Device

Sources: Company annual reports, Bloomberg, McKinsey analysis

...and even faster in Q3

~60%

in revenue growth by leading locals² in '20 Q1-Q3 vs. '19 Q1-Q3

MNCs' global business still in recovery mode

-12%

decline in average global revenue by top 5 MNCs³ in '20 Q1-Q3 vs. '19 Q1-Q3, and some have recovered to similar level as Q3 last year

6. Leading locals are expanding and maturing quickly

Average performance of top 8 China MedTech players¹



1. Top 8 players ranked by 2019 revenue: Mindray, Wego, Shinva, Microport, Yuwell, Bluesail, Maccura, Autobio; Exchange rate USD/ RMB=7

- 2. Weighted average of Top 8 China MedTech companies
- 3. US top 8 include Medtronic, BD, Stryker, Boston Scientific, Zimmer Biomet, Smith & Nephew, Edwards Lifesciences, Hill-Rom (2019 top US-based "pure play" MedTech with available financial data)
- 4. Non-US revenue, weighted average

6. Locals have built strong footholds across categories

HIGH LEVEL ESTIMATION

Local vs. MNC share across product categories (2019, % of China market value)



6. Factors driving growth of local MedTech



Abundant

6. From "first in China" to "first in the world"

First in China



VenusA-Valve is the first transcatheter heart valve replacement system approved by NMPA, three years ahead of the first import product launched in China

AmoyDx

First launch of EGFR gene mutation detection NGS kit for NSCLC liquid biopsy

First launch of multiple gene mutation detection kit for NSCLC and CRC. Also the first covering different cancer types

First in Global

Developed uEXPLORER, an ultra-highresolution digital PET/CT with a 194-cm axial PET field of view enabling whole body scans in one bed position, with world-leading performance



Marketed artificial intelligence enabled CT-FFR¹. It performs a non-invasive assessment of FFR values, and the only commercially available one in China. Achieved 89% accuracy and the first product globally to deliver results in minutes Many local innovative medical products are using NMPA's "fast track" product registration

1. CT-FFR: fractional flow reserve based non-invasive CT algorithm technology, a novel method that allows efficient assessment of the functional significance of coronary stenosis

7. The current distribution model is unsustainable under VBP

Illustrative





How would channel economics change if the "to-hospital price" fell by 50% or more?

8. Tech giants venture into MedTech through own developments and ecosystem partnerships



8. MedTech players are building digital partnerships to capture value along the patient journey



1. China Academy of Information and Communications Technology

2. Digital subtraction angiography (DSA) is a fluoroscopic technique used extensively in interventional radiology for visualizing blood vessels in procedures

9. Accelerated value creation through capital market by local **MedTech**



2.

Source: Capital IQ; McKinsey analysis

9. Local MedTech sector currently outsizes local biotech, however remains highly fragmented



1. Chinese MedTech companies listed in all stock markets, including A share, NASDAQ, HKEX, STAR, YTD value as of Nov. 10 2020;

2. For biotechs and CRO/CDMOs focusing on innovative drug development and listed in NASDAQ, HKEX, STAR, YTD value as of Nov. 10 2020

3. Combined market cap at NASDAQ and HKEX; Beigene announced it's planning to be listed on STAR in 2021



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Decoupled MedTech markets



With continued geopolitical tension and access limits across markets, China could focus on domestic needs, innovation and investment

Global business growth engine



China continues to be the most critical contributor to growth in the global MedTech market and a net importer of innovation

Epicenter of global MedTech industry



China could achieve a step-change in its global market position by leading in technology and business model innovation, including larger investments in global markets and assets

Four critical dimensions of China's path to global MedTech leadership



What we have heard from China MedTech CEOs





Market attractiveness

Challenging macro environment this year with growth impacted by COVID-19 and price pressure

Nevertheless, China remains an important market – players will double down to accelerate growth Market access

Geopolitical tension and local preferential policies raise concerns for MNC MedTech

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Pricing environment could deteriorate with VBP on medical consumables and DRG on the horizon

Localizing – becoming a "true local insider" – is top of mind for global MedTech executives



Pace of innovation

Business model transformations are underway, driven by emerging technologies, data & analytics, and new healthcare paradigms

Building digital and omnichannel capabilities is the core competency to capture emerging opportunities

Leaders will build capabilities quickly as they foster ecosystem partnerships and incubate external innovation



Investment trends

China MedTech is a hotspot for investment by PE/PI and new entrants, with rising valuation and lack of high-quality assets

local MedTech companies and investors remain interested in cross-border transactions, but regulations are becoming more challenging

1. China is the second-largest and fastest-growing country market for MedTech, contributing a third of global growth



Sources: GlobalData, Health Research International, Business Monitor International research, McKinsey analysis

1. The macro environment has deteriorated in the last two years

Based on survey of 14 China CEOs of leading multinational MedTech firms



How has overall market environment changed in the last two years?



"""

Pricing pressure will continue, especially for commoditized products. VBP is likely to expand in the near future.

The worsening China-US relationship will impact our business decisions ... lots of uncertainties that we need to deal with.

2. VBP will disrupt the market and challenge traditional operating models



Consolidation of small and local distributors

Innovation, market access, and data & analytics becoming the new core competencies

2. Global MedTech companies are accelerating localization in China

Survey of 14 China CEOs of leading multinational MedTechs

localization production Significantly increase Localized production 67% serving global market Somewhat increase >80% Localized production 29% Stay about the same serving local market

29% ~60% 29% 36%

Somewhat decrease

Significantly decrease

About 60% expect increased

7%

0%

Introducing key capabilities in technology, manufacturing and supply chain is emphasized by "open up" policy by central government

The government has published a number of policies supporting localization in 2020, such as the National Level Marketing Authorization Holder and Guideline on Localization of Manufacturing of Medical Devices Approved Overseas

Sources: APACMed Business Sentiment Survey 2020 (n=14), McKinsey analysis

14%

No localized production

More than 80% already have localized

3. Four themes shaping MedTech innovation





Indigenous innovation is still at an early stage in China, with few disruptive innovations in MedTech. Incremental innovation is still mainstream.

We expect more business model innovation with new digital approaches and tools becoming available to physicians and patients.

1. Automated peritoneal dialysis

3. MedTech leaders expect a shift in innovation paradigm

Adopted within last 2 years Priority in next 2 years

Share of respondents (China GMs)



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Regarding innovation, which of the following model(s) has your company adopted to foster innovation in China? What do you see as priorities for the years ahead?

Data collection, analytics and monetization Strategic partnerships: traditional healthcare players 00 Venture investments and incubator approaches $\vdash \rightarrow$ M&A targeting local companies Sources: APACMed Business Sentiment Survey 2020 (n=14), McKinsey analysis

Business model innovation

Investment in product / portfolio R&D

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McKinsey & Company 35

3. Digital capabilities are top of mind

Neutral Strength Weakness

亞 70%

of GMs say digital will be their companies' top priority in the next three years, while the hybrid GTM model is here to stay

(C L C L O

Which areas do you consider strengths and weaknesses of your company in China?





Evolving customer preferences for digital

of physicians expect to attend fewer industry conferences in person

30-60%

of physicians expect fewer in-person interactions with sales reps

~50%

of physicians want to interact with reps by video >60%

of physicians want more virtual product training

4. PE and VC investments in China MedTech continue to thrive

PE/VC transactions in MedTech in Greater China, 2015-2020



2019-20 selected major deals \$ millions MGI Tech DNA sequencing ● MGI 华大智造 1,000 equipment MicroPort Medbot Surgical robots **510 Dirui Industrial (Testing** DICUI通瑞 492 equipment & material) SH Kehua Bio-engineering (in-KHB 科华生物 243 連時代語:0000000 vitro diagnostic instruments)

1. Includes deals with Target Greater China; not all deals reveal transaction value

4. Genetic testing is the biggest hotspot for PE and VC investment

Segment	Number of deals (share of total) 255	Key portfolio	Representative target
IVD	100 (39%)	About 70% are related to genetic testing, such as next-generation sequencing, companion diagnostics and liquid biopsy; followed by POCT as the second- largest category	Setting Race D Setting Race D
Cardiovascular	29 (11%)	Heart valve, artificial heart, peripheral vascular, coronary vascular implant	MicroPort' CordioFlow ConditioFlow ConditioFlow ConditioFlow ConditioFlow ConditioFlow
Capital equipmen	t 24 (9%)	Dx imaging (including core components), oncology therapy, after service	
Surgery	22 (9%)	Robotics, endoscopy, stapler	EDGE ^V EDICAL EDGE ^V EDICAL 積容医疗 横容医疗
Dental	15 (6%)	Invisible orthodontics, implant	Aidite 爱迪特 + Smile Formula XiXilab XZUGA
Others	65 (25%)	Digital, neurology, orthopedics, home use, rehab, ophthalmology, drug delivery (individual share <5%)	
-	2010-2020		

2019-2020

1. Includes deals with Target Greater China; not all deals reveal transaction amount

4. Outbound investment has slowed since 2019

M&A investment inbound vs. outbound, 2012-2020 (Jan-Oct)¹, announced value in US dollars (# of deals²)



1. Based on announcement date; partial interest included

- 2. Not all deal sizes are disclosed
- 3. Increased to 67% stake in 2019

4. Revised down from 100% to 45% acquisition in 2019, booking under original announcement in 2018

4. More new entrants in MedTech

Non-exhaustive Outside-in perspective

Lenovo

Lenovo Research Institute developed Lenovo H3, an ECG recorder

Invested in Changmugu (长木谷) in A+ round, offering AI solutions in orthopedics 火 HUAWEI

Established a subsidiary, Honor Terminal (荣耀终 端), for R&D, manufacturing and sales of medical devices with registered assets 300 million RMB

A wrist-worn onechannel holster approved by NMPA

GREE Ky

To invest 1 billion RMB to develop and manufacture highend medical equipment; established two subsidiaries for Class II medical devices, including disinfection and sterilization products

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Set up a subsidiary with GSP certificates for Class II and III medical devices



New controlling shareholder of Kangda Medical, which provides diagnostic imaging equipment including MRI, ultrasound and dental imaging systems

Haier

Acquired 29% stake for 2 billion RMB in Starmap, which specializes in oncology therapy including gamma knife, oncology specialized hospitals

Many MedTech MNCs will double down on investments to grow in China

Will COVID-19 impact the midto long-term attractiveness of the Chinese market for MNCs? What is the investment appetite of your company in China in next 3-5 years?



China's fast reaction and handling of the pandemic demonstrates its resilience. China remains as a priority market at the global level.



China will emerge as a more important growth driver as its situation is likely to improve faster than other markets. We will double down our efforts here in the coming years.



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Closing thoughts: What will matter most for MedTech leaders in China

- 1. China remains the most critical market in global MedTech, requiring MNC's local commitment and exploring localization opportunities along the value chain
- 2. Given geopolitical and pricing uncertainties, and the post-COVID new normal will persist planning in scenarios and responding with agility
- 3. The market has reached an inflection point, triggering players to rethink portfolio strategy, revamp the GTM model and innovate the business model
- 4. Digital & analytics, market access and talent is a winning formula, along with accelerating capability-building through ecosystem partnerships
- 5. China MedTech is on the rise to become the most attractive sector for investors introducing innovation, discovering emerging segment, building scale and platform are key investment thesis

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