



Six Predictions for 2020
China Pharmaceutical & Health Care

February, 2020

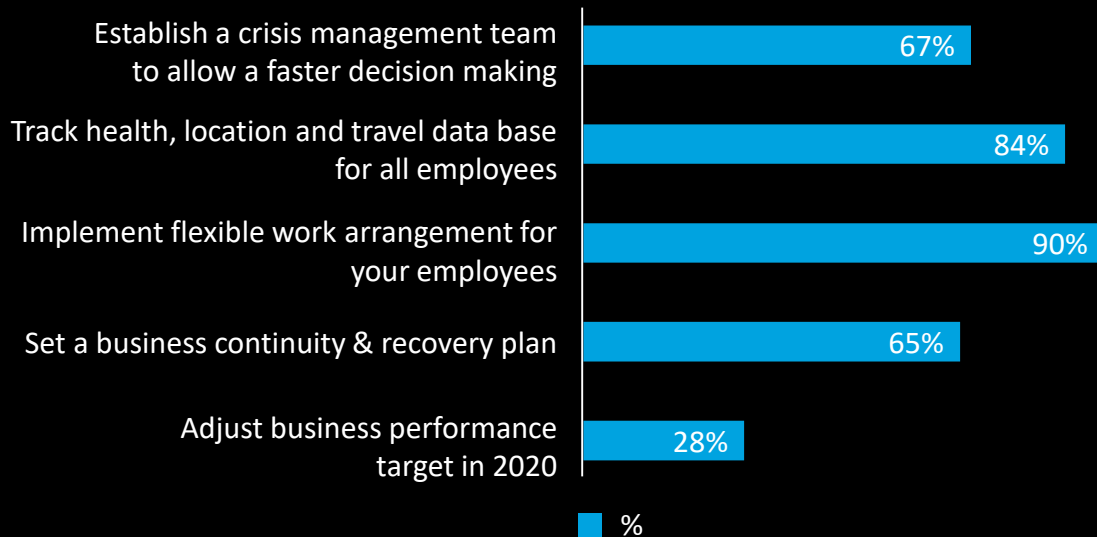


**MAKING AN
IMPACT THAT
MATTERS**
since 1845

From a survey launched by Deloitte in response to the COVID – 19 outbreak among 104 leading pharmaceutical company executives in China ...



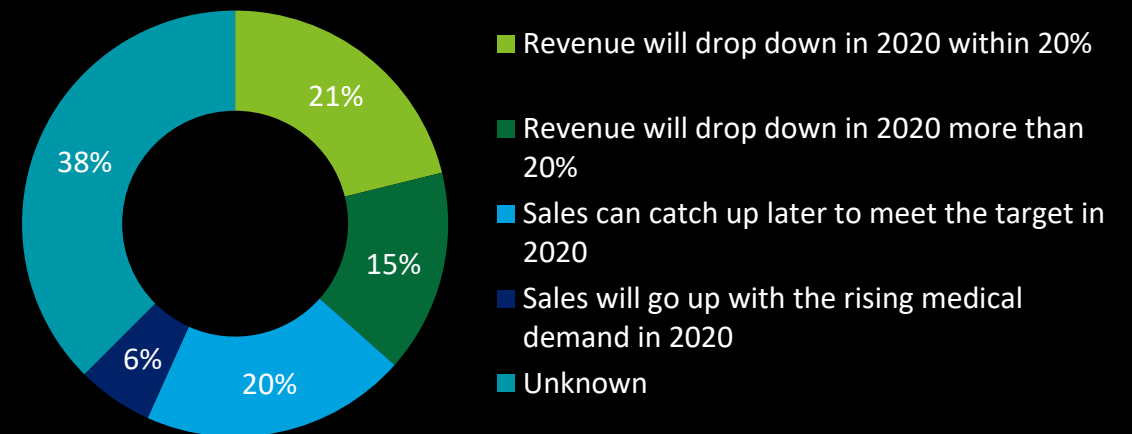
Almost all respondents set out plans in facilitating daily business operation and employee health monitoring



Q: How did your company respond to the crisis? [Multiple choices]



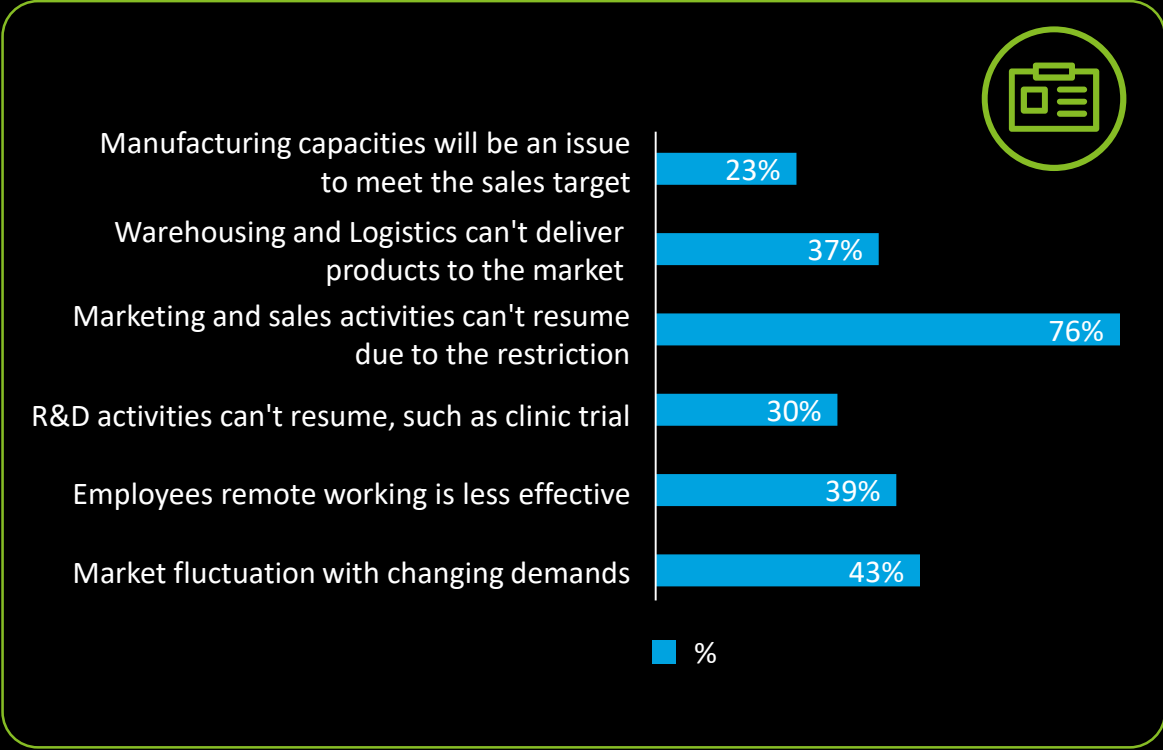
Yet, ~40% of respondents still believe there's an increasing uncertainty in meeting their 2020 FY targets



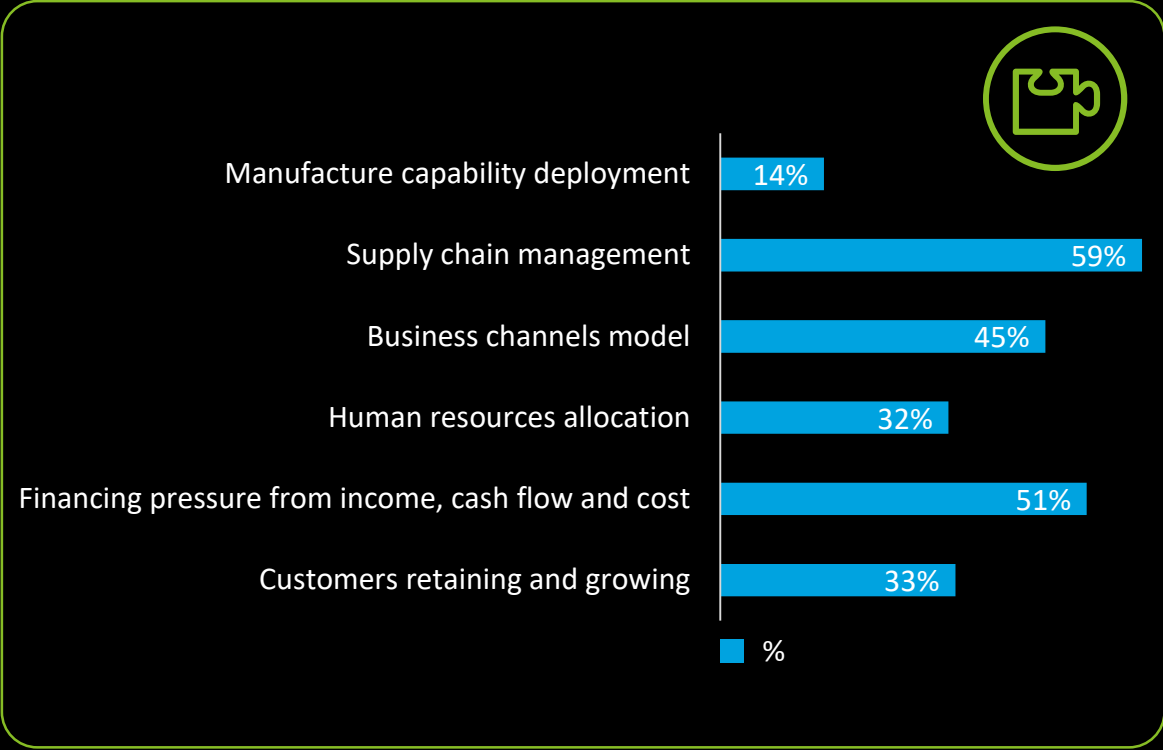
Q: How do you foresee the crisis will impact on your business revenue in 2020?

Source: Deloitte survey N=104

These uncertainties are primarily perceived to be driven by increasing challenges in sales & marketing and supply chain management




Q: Within your business priorities, what are the most difficult challenges to overcome during this crisis? (Please prioritize top 3)

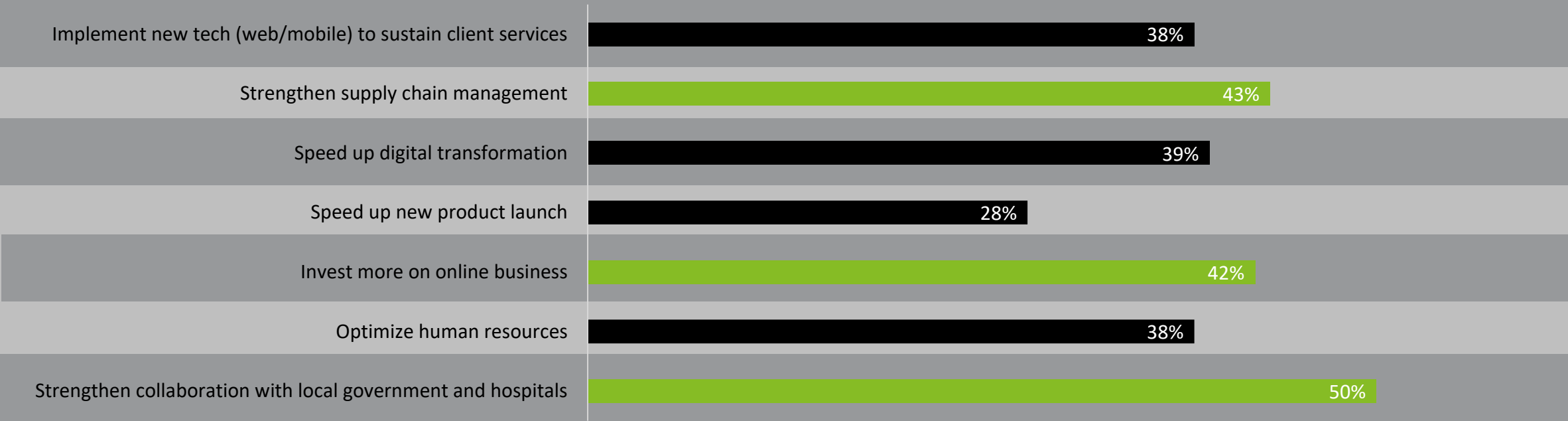



Q: On what aspects does this crisis impact your enterprise most? (Please prioritize top 3)

Source: Deloitte survey N=104

To mitigate the impact, survey respondents believe that supply chain, digital channel and enhanced collaboration are priorities

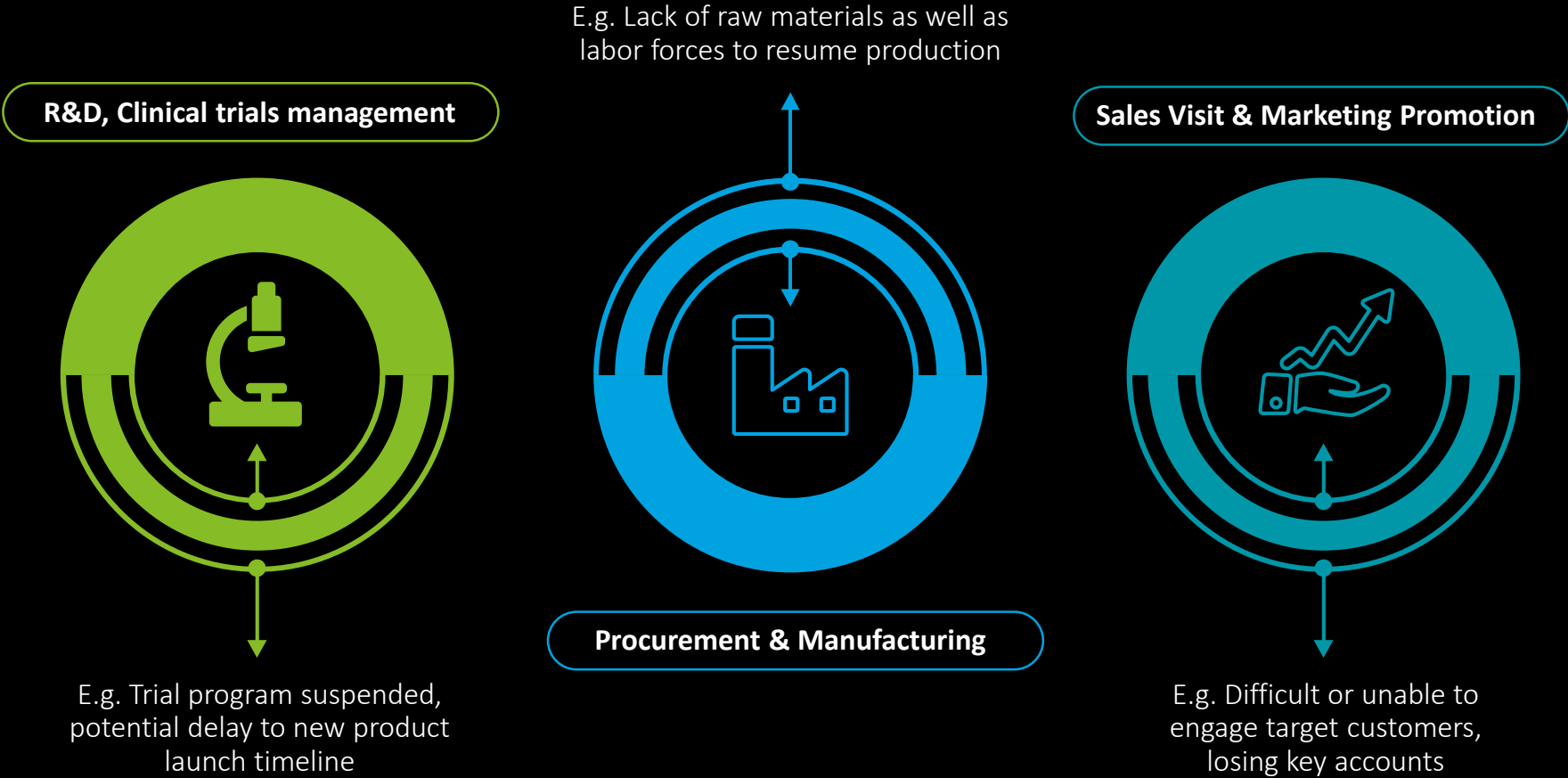
 **How will your company do in short term to mitigate the impact to your business? (Please prioritize top 4)**



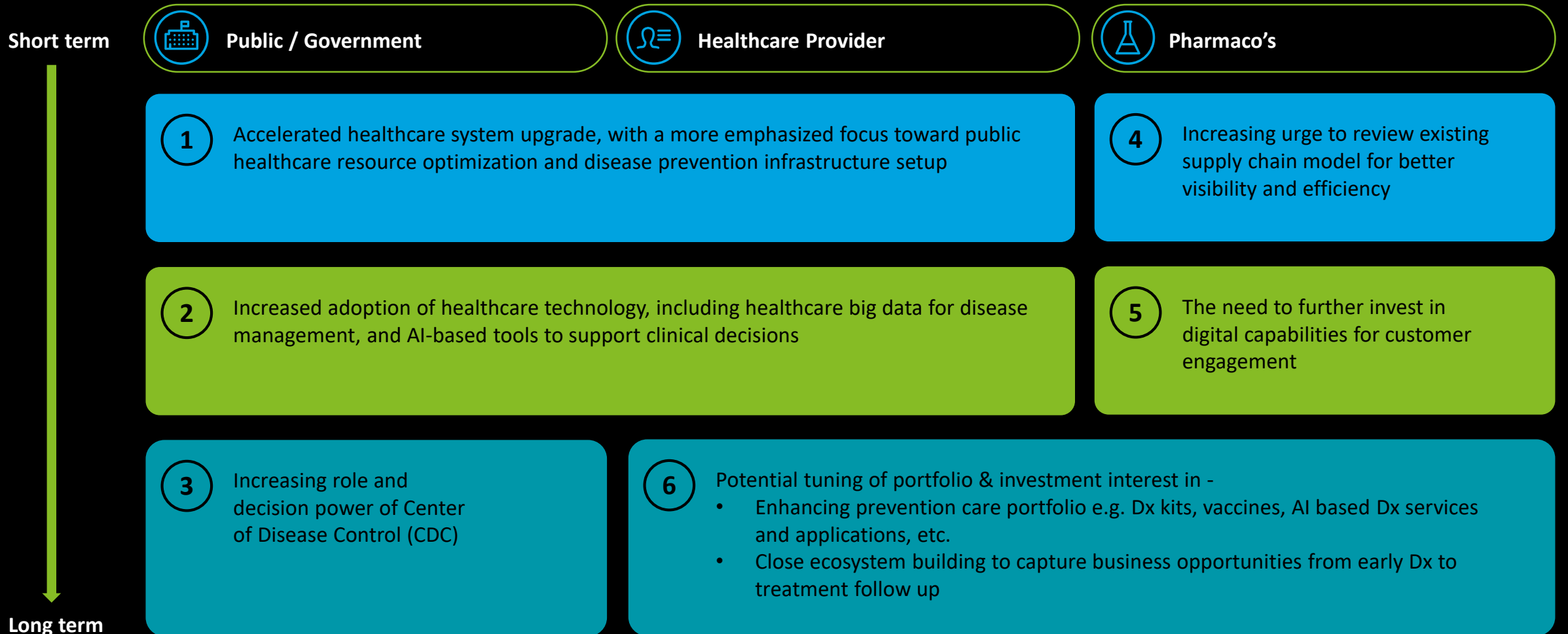
 TOP 3 plan to mitigate impact

Source: Deloitte survey N=104

Anticipated short – term impact to pharmaceutical companies in China



We made six predictions on the industry involvement after the virus outbreak



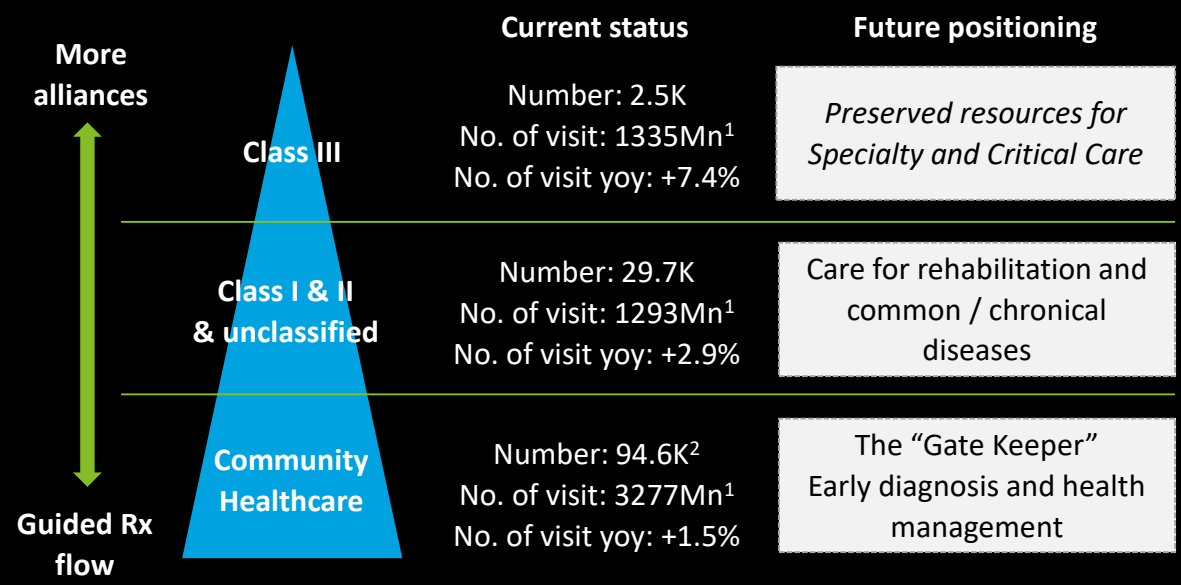
Predictions – Further accelerated healthcare system upgrade



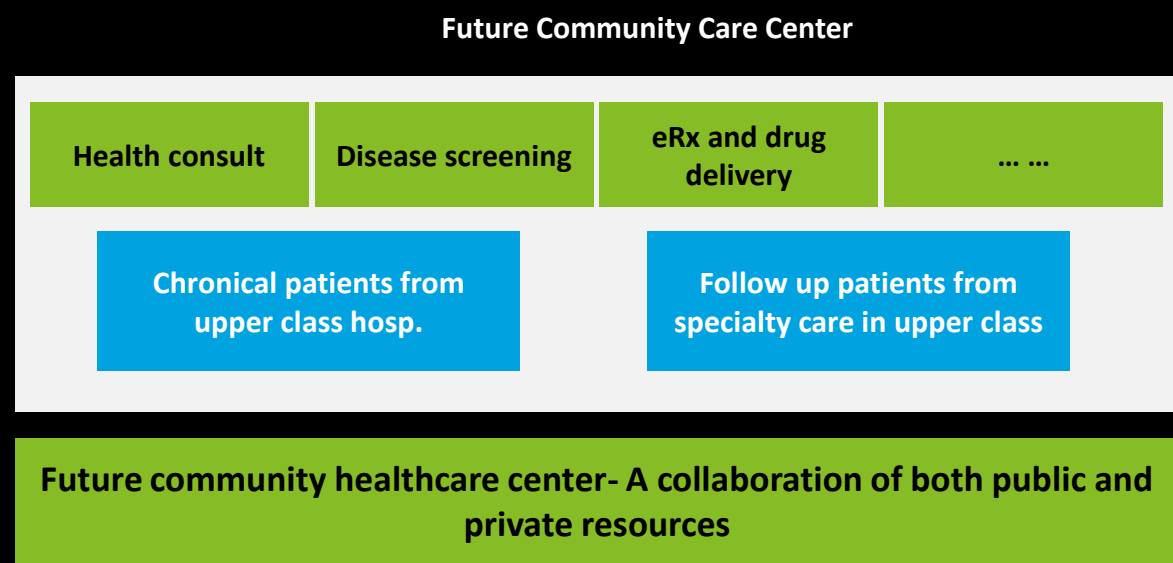
Key observation: The outbreak of COVID-19 has again exposed capacity and capability issues in the healthcare system, E.g. limited inpatient capacity of Class III hospitals, insufficient diagnose and treatment capability and infrastructure in CII and below hospitals, etc.

We predict that COVID-19 will be a key trigger to accelerated invest in primary care infrastructure

Public system will continue to improve ...



... with a particular focus in primary care

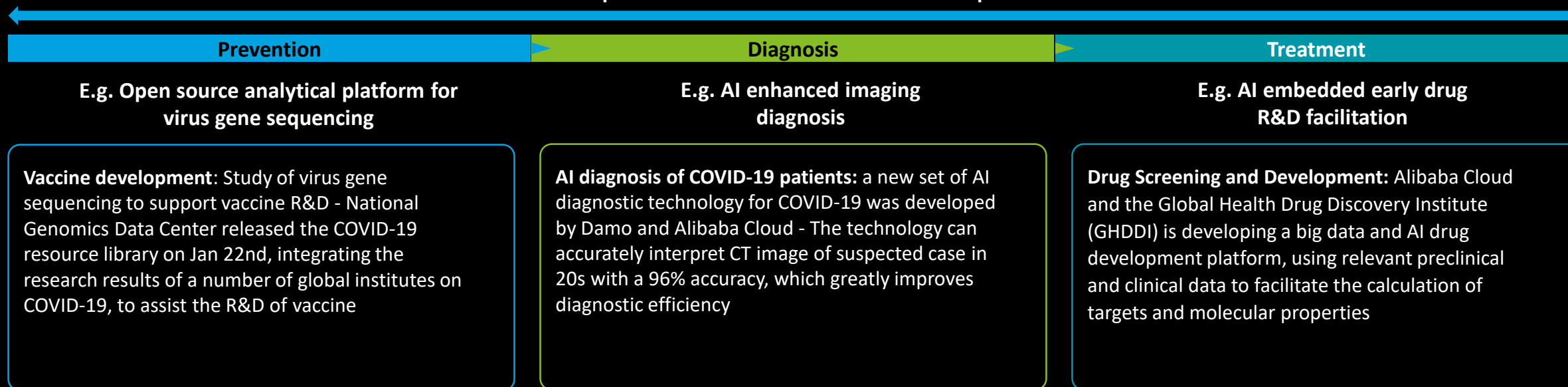


Note: 1. Accumulated number of visits from Jan. 2018 to Sep. 2018. 2. Includes community health center, township health center, clinics, and village clinics

Key observation:

- **After the outbreak, the application of big data and epidemic prevention has gained more attention from the government level: The Meeting of the Standing Committee of the Political Bureau of the CPC Central Committee on February 3rd stressed that "to promote the open sharing of relevant data and case information to accelerate the research on virus origin and transmission mechanism, improving prevention and control measures"**
- **As the "2019 Global Artificial Intelligence Health Summit" also suggested, "Ai + Medical Imaging" will become one of the most promising field in healthcare providers with potential for commercialization. E.g. In Shanghai, over 20 Class III hospitals have introduced AI assisted diagnosis and treatment research programs, with the goal to facilitate clinical pathway efficiency for patients**

Public hospital reform – Focus from treatment to prevention



Digital Technology & Big data application in public health management – "Health QR Code" for COVID – 19 control & monitoring

- **On Feb. 11th**, Hangzhou took the lead in the **"Hangzhou Health QR Code" for COVID-19 prevention and control**
- The code is in accordance with the requirements from a series of epidemic control regulation enacted by Zhejiang and Hangzhou govt. **To facilitate the travel demand of the people and those who are waiting to enter Hangzhou**, this digital tool is adopted to **minimize the risk of serious outbreak when huge amount of people return to work/school from other cities**
- **Till Feb. 18th**, over 100 cities have adopted this digital management tool, while nationwide launching

Introduction

- Based on Alipay, use **tricolor QR code (red/yellow/green)** as a digital health certificate
- **Quarantine measures** will be determined by checking code
- **Application scenarios:** transportation hubs (airports, railway stations, highway toll stations); community and office building entrances, etc.

How does it work

- **Self-Description:** applicants conduct online declaration
- **Database** establishment and data crosscheck
- **Area/places screening**
- **Dynamic real-time update:** the code will automatically change color if the applicant finishes required quarantine or updated declared info

Next Step

- **Under the guidance of the E-Government Office of the General Office of the State Council**, Alipay is accelerating the development of a unified national health code system
- **The national code is expected to launch on Feb. 24th**

Future Scenarios

The technology can be used to create **"National e-health code"** to solve the data island problem among hospitals

Patients in any hospital can use the code to **access their personal health data** throughout the whole process of treatment

Doctors can quickly understand the patient's past cases greatly improving the efficiency of the hospital visit

Help with **stratified care, two-way referral, health management, online hospital visit**, etc.





« Healthy China 2030 »

Sets guiding principles of public health provider system design:
 “Higher emphasis on disease prevention ... and allocate more resource in primary care”

The 12th meeting of the Central Committee for comprehensively deepening reform

“Focus on improving institutional mechanism for disease prevention and control of major epidemic, improving national public health emergency management system”



Therefore we foresee that the role of CDC system will become increasingly important in the future ...



Comparison of government budget for China CDC, China public hospital and that for US CDC

China CDC

The government’s funding to CDC in 2019 was ¥ 0.45bn, down by 14.9% YoY compared to 2014

China Public hospital

The government’s funding to public hospitals in 2019 was ¥ 5bn, up by 38.8% YoY compared to 2014

US CDC

US CDC has an annual budget of more than \$12 billion, or nearly \$40 per person

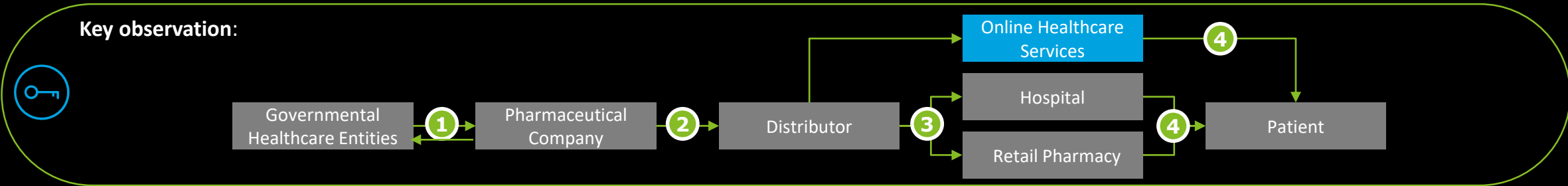
Funding for CDC continues to decline and resources are comparably inadequate

After the outbreak of COVID-19

What to expect after COVID-19...

- Balance resource spending on prevention, diagnosis and treatment, increase funding for CDC
- Full empowerment of role of CDC
- Optimize the talent structure and improve the management system
- Increase the efforts in public health education to build the understanding of “prevention comes first”

Predictions – Increasing urge for companies’ to review existing supply chain gaps and improvement opportunity for efficiency



Pharma company engagement opportunities

1 Co-improve disease control & prevention

- **Closer collaboration** with public healthcare providers and research entities in disease epidemiology and drug screening and development
 - Talents
 - Infrastructures
 - Funding

2 Form unified standard to improve efficiency

- **Logistics integration:** Multi-warehouse cooperation; supply chain integration via integration of information flow and logistics plans
- **Operational mgmt.:** Unified ERP system of key subsidiaries

3 Enhance influence on target customers

- **Hospital services:** Support further transformation of public healthcare provider reform
- **B2B2C platforms:** Enrich the distribution network through more B2B and B2C platforms

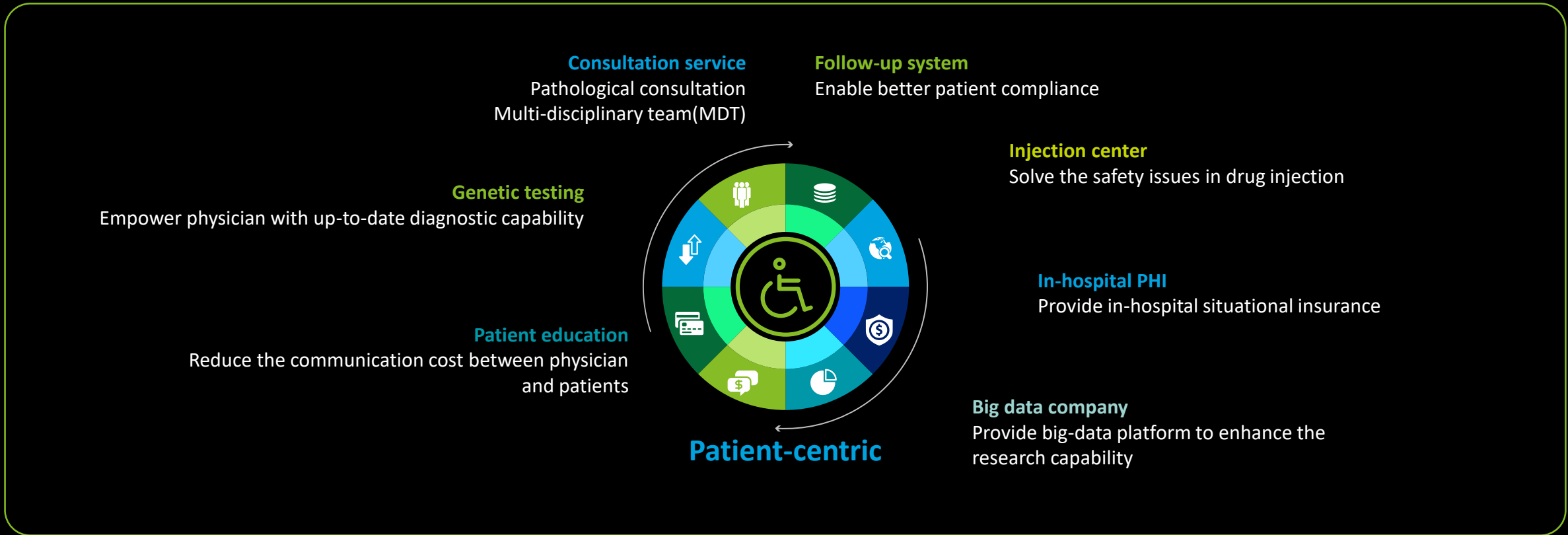
4 Explore new channels to engage end users

- **O2O model by online and offline integration** to provide value added purchase options and other pharmacy services for patients

Short-term angle: new channel / models to mitigate operating risks

Long-term angle: integrated supply chain model to facilitate business strategy & planning

The virus outbreak significantly limits the physical interaction with healthcare providers – more adoption of patient centric engagement model will be further accelerated



Potential tuning of companies' portfolio strategy – future promising investment areas within the industry

6

The outbreak of COVID-19 on the other hand exposes existing unmet needs in disease prevention, diagnosis and treatment, with increasing focus in regulatory approval reform, we foresee more investment in ...

Examples



Prevention

Established process for vaccine R&D

- **Establish an efficient vaccine development process and conduct thorough research on known pathogens in order to respond quickly to outbreaks of infectious diseases:** after the Outbreak of H1N1 flu in the United States, States, due to the fully established process of influenza virus vaccine development, H1N1 vaccines were approved by FDA within only 5 months; Sanofi has accelerated the development of COVID-19 vaccine using gene recombination technology and the candidate vaccine for SARS



Diagnosis

Enhanced diagnostics tools and technology

- **Develop diagnosis measures with higher sensitivity, response speed, and convenience, such as better POCT solution:** continuously improving POCT technology from quality control, cost, flux, interconnection and other aspects - For contagious diseases, improve POCT's sensitivity and convenience can avoid missing out on infected patients as well as explore the possibility of conducting **at-home testing**
- **AI Diagnostic Technology and Platform:** Tsinghua University Launched COVID-19 Intelligent Diagnostic System to improve diagnostic capability of primary hospitals



Treatment

Novel MoA and Indication Strategy

- **Discover new anti-viral drug MoA: Example:** capsid inhibitors (CAI), a new antiretroviral mechanisms, has successfully completed preclinical studies; a new implanted anti-HIV drug "islatravir" developed by Merck achieved good results in Phase I clinical trial
- **Design efficient drug screening process and platform to shorten the response time of new pathogens:** potential application includes using AI technology to improve the efficiency and speed of drug target screening as well as new indication of mature drugs, etc.

Key implications to pharmaceutical companies in China

How can we capture the emerging opportunities moving forward?

**Patient centricity
model and patient
activation**



- Embrace accelerated adoption for future healthcare service and product delivery model
- Conduct supply chain integration and optimization

**Co-construction of
new disease control &
prevention system**



- Participate in disease prevention infrastructure building
- Explore opportunities in health big data and AI in disease prevention and treatment, public health risk identification
- Partner with government entities for broad market healthcare professionals education

**Revisiting pipeline
and in-market
portfolio**



- Revisit in-market product strategy to capture potential opportunity immediately after virus outbreak
- Revisit future portfolio to prioritize specific products or identify potential BD opportunities

Contact

Key contacts



Jens Ewert

Industry Leader
China Life Sciences & Health Care
+86 21 6141 1858
jensewert@deloitte.com.cn



Andrew Yu

Consulting Leader
China Life Sciences & Health Care
+86 21 2316 6913
andryu@deloitte.com.cn

Additional contacts

David Xie

Consulting Director
China Life Sciences & Health Care
daxie@deloitte.com.cn

Eric Chen

Consulting Manager
China Life Sciences & Health Care
ericwechen@deloitte.com.cn

Linda Pu

Program Manager
China Life Sciences & Health Care
linpu@deloitte.com.cn

Wang Huan

Research Manager
China Life Sciences & Health Care
huwang@deloitte.com.cn

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