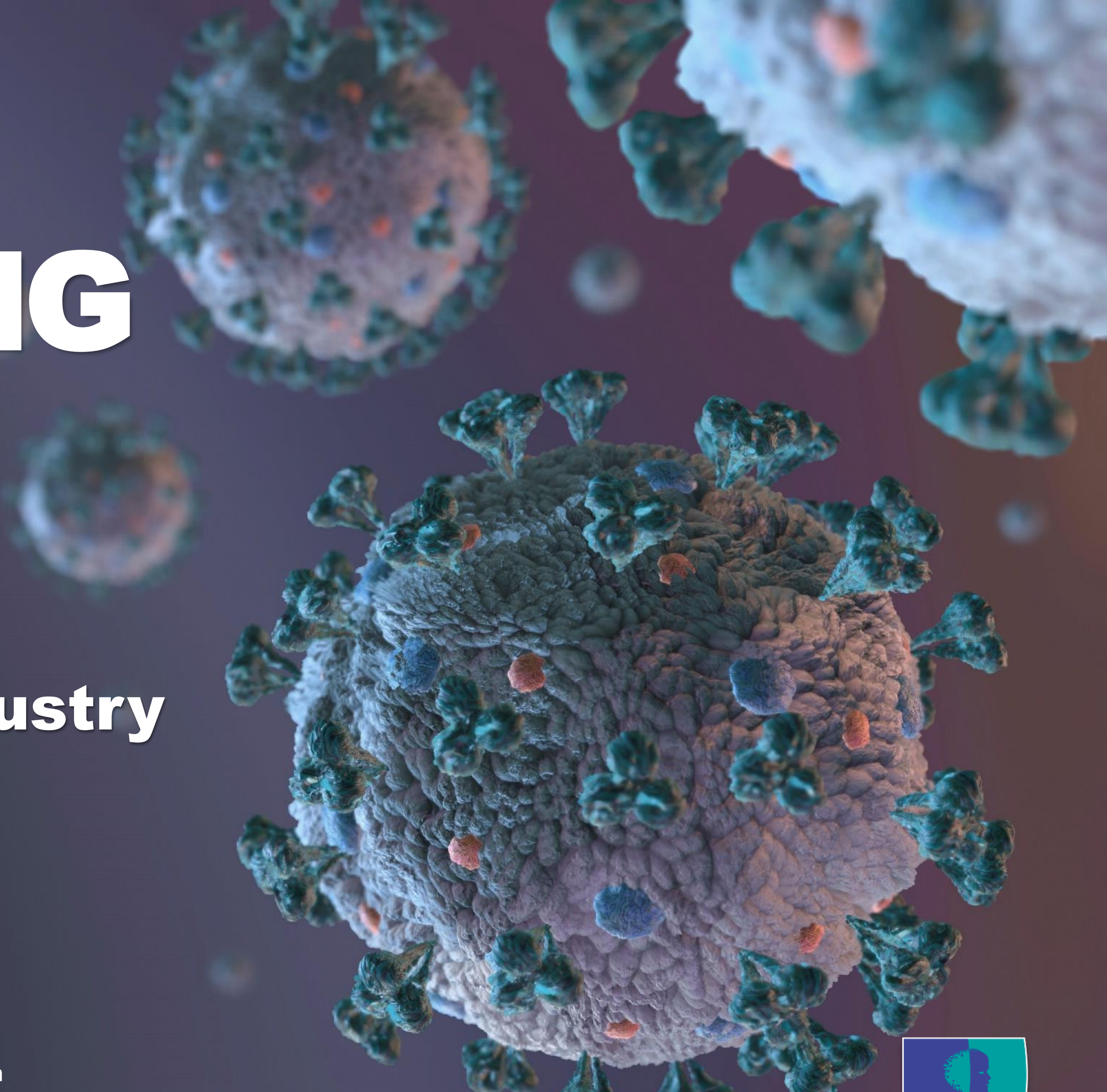
CONFRONTING COVID-19

An Ipsos perspective on economical & medtech industry impacts in China

PART 3



© 2020 Ipsos. All rights reserved. Contains Ipsos' Confidential and Proprietary information and may not be disclosed or reproduced without the prior written consent of Ipsos.
益普索版权所有，涉及益普索机密及专有信息，未经公司事先书面同意，严禁对外披露或复制。

GAME CHANGERS

Ipsos

Part 3 content

Global & China

⦿ COVID-19 Global trends and impact on China's healthcare industry: May 2020

- Globally, the outbreak has been gradually brought under control after peaking
- Worried about a second wave of outbreak, China remains vigilant about COVID-19 control
- Impact on the value of healthcare is sustained, with increasing workload on health workers, due to infection control and testing
- Recovery of medical service in most regions in China has sped up
- Public hospital revenue in 2020 expects flat growth, while private ones to suffer loss

Hospital & Consumables

⦿ Hospital volumes and consumables tracking (Q1 2020): An Ipsos study sampled from 40 hospitals in major provinces across China, measuring:

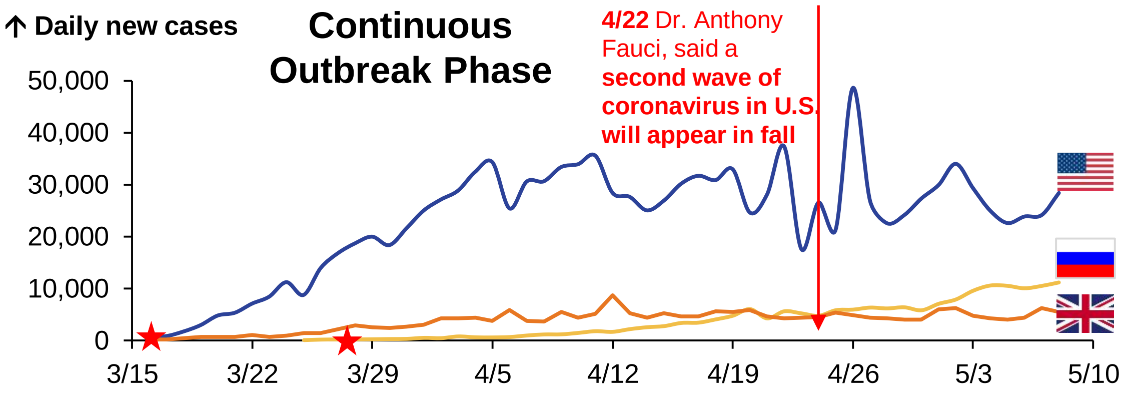
- Extent of the impact on hospital outpatient, inpatient and surgery volume
- Year-on-year comparison of surgery volume in main departments
- **Change in volume of use of selected low- and high- value consumables**

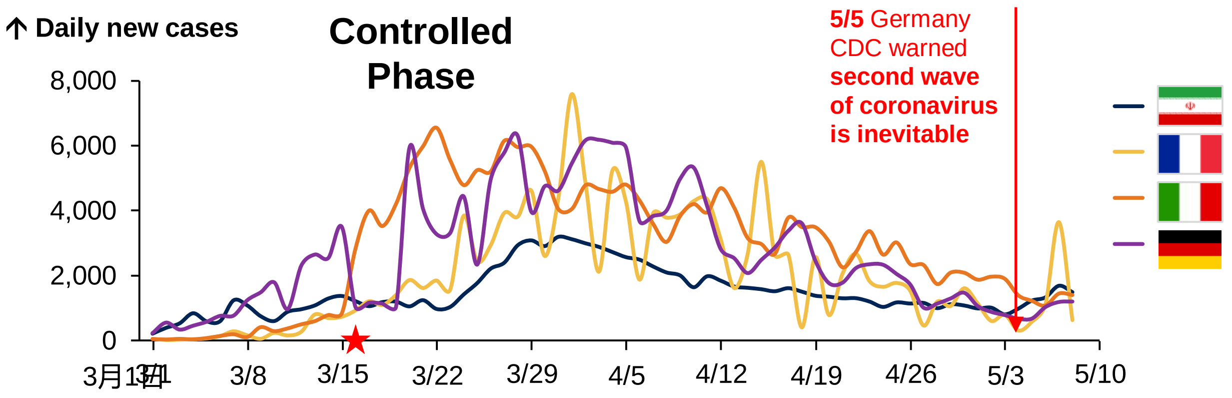
COVID-19: GLOBAL TRENDS AND IMPACT ON CHINA’S HEALTHCARE INDUSTRY IN MAY 2020

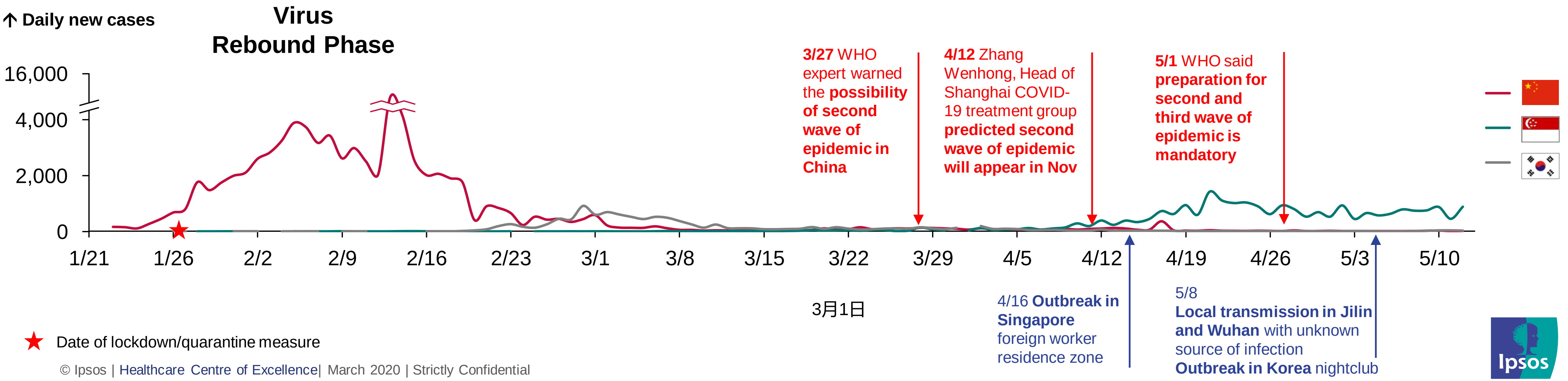
1

The global epidemic has passed its peak and entered the controlled phase in many European countries; Several Asian markets with the earliest initial outbreaks are seeing a rebound of the virus in certain densely population areas of the country

Epidemic situation in major areas of transmission[1,2]







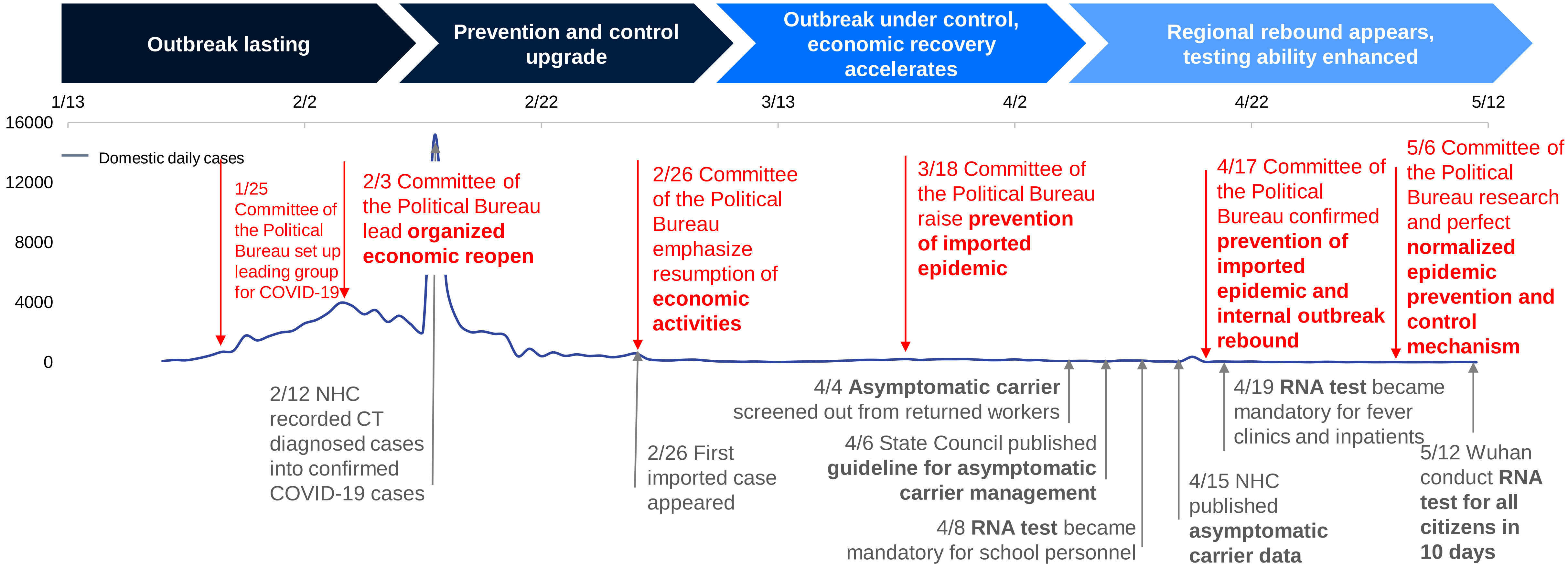
★ Date of lockdown/quarantine measure

© Ipsos | Healthcare Centre of Excellence| March 2020 | Strictly Confidential

Data & Information Source：1. ourworldindata epidemic data as of May 11; 2. NHC epidemic data as of May 11; 3. Ipsos Analysis;

To prevent a potential secondary outbreak, epidemic control in China balances accelerating economic activity recovery with enhanced COVID-19 testing ability

Key policies and milestones of COVID-19[1]



Key takeaways

China is rapidly establishing a normalized epidemic prevention and control mechanism to fight a virus rebound. Key measures include accelerating economic reopening, alongside testing ability enhancement to ensure 'employment rate, basic livelihood, stable market entity, food and energy security, stable industrial chain & supply chain and operation of fundamental level of government.'

© Ipsos | Healthcare Centre of Excellence| March 2020 | Strictly Confidential

Source： 1. Xinhua Net, China Gov； 2. CGTN Zhong Nanshan Interview; 3. Chinese Journal of Epidemiology 2020,41(2):139-144； 4. Eurosurveillance 2020;25(10)； 5. Nature 25，2000180 （2020）； 6. Ipsos Research； 7. Ipsos Analysis；

Enhanced COVID-19 testing includes multiple types of test platforms and aims to detect even asymptotic carriers

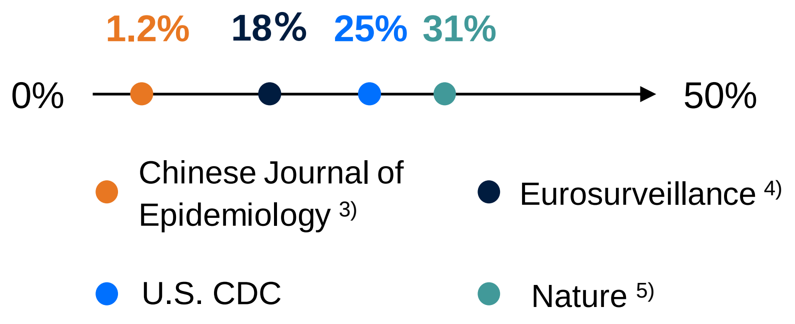
Enhanced testing

Test types being offered in China	Testing method				RNA test visits Mn/year	Antibody test visits Mn/year
	RNA	Double antibody	Lung CT	Blood routine		
Wuhan citizens	✓				11.1	/
Inpatient/surgical patients* & Accompanying family members	✓	✓	✓	✓	120.0	60.0
Fever clinic *Outpatients with symptoms*	✓	✓	✓	✓	10.0	6.7
Personnel in reopened business Voluntary testing	✓	✓			3.0	1.5
Returnee Close contact of confirmed cases	✓				0.4	/

Asymptomatic cases

<u>Prevalence of asymptomatic cases</u>

- Domestic epidemiologic study shows that asymptomatic carrier account for 1.2% of all confirmed cases with infectivity
- *****A testing result of nationwide inpatients shows ratio of asymptomatic carrier is around **0.3-0.5%**[6]*



% Asymptomatic Cases in Total Confirmed Cases with Infectivity according to Different Institutions

© Ipsos | Healthcare Centre of Excellence| March 2020 | Strictly Confidential

Source： 1. Xinhua Net, China Gov； 2. CGTN Zhong Nanshan Interview; 3. Chinese Journal of Epidemiology 2020,41(2):139-144； 4. Eurosurveillance 2020;25(10)； 5. Nature 25，2000180 （2020）； 6. Ipsos Research； 7. Ipsos Analysis；

R&D in China is still being impacted in May 2020; healthcare services are recovering, with infection control measures remaining tightened in all facilities

HEALTHCARE VALUE CHAIN IN CHINA

	Pharma/ MedTech R&D	Manufacturing	Distribution	Healthcare service	Patients
Current situation in China (early May)	**20%** clinical trials have been suspended, esp. those in Wuhan, nationwide COVID-19 designated hospitals, and nationwide respiratory & infection departments **65%** clinical trials have been postponed	**99%** of pharma and medical manufacturers have restarted operation, esp. the medium-large scale plants Impact on imports gradually assuaged, as oversea production starting to resume in May	**99%** of national pharmacy distributors and local distributors have returned to operation by end of Q1	Inpatient volume has recovered to **85%** of normal level, outpatient to **90%** by end of April; health workers are overworking at **110%** capacity **80%** medical examination centers are gradually reopening	**>95%** patients, esp. those with acute/critical/ chronical illness start to visit hospitals, while those with less severe conditions avoid medical consultation, due to fear of infection **90%** patients postponed physical exams
China recovery prospect in Q2	**Slow and steady recovery** expected in Q2 in most provinces; still facing limited principal investigator capacity, and patients' fear of infection **Widespread clinical trial delay** across the globe, due to outbreak in USA and Europe	**<50%** of pharma and MD&D imports' supply will be delayed, especially biologics, blood/serum, vaccine, wound management, radiology equipment from EU and USA, & rest of the world	Sharp increase in demand for **Internet of Things (IoT) based smart hospital logistics and service**, with more class III hospitals starting to plan SPD (supply, processing, distribution) service since March 2020	**99%** of outpatient and inpatient service capacity will recover to normal levels in Q2, except Hubei **60%** recovery of hospital service capacity expected in Q2 in Hubei province	**~99%** of those with medical needs will gradually visit hospitals/clinics in Q2, except Hubei, Beijing, Heilongjiang and Jilin Physical examination volumes slowly recovering in Q2

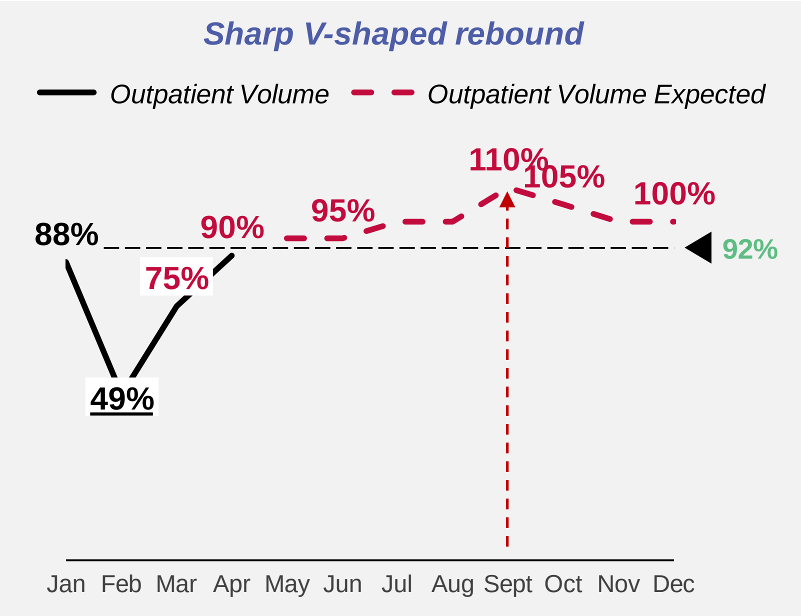
Impact: HI MED LOW

© Ipsos | Healthcare Centre of Excellence| March 2020 | Strictly Confidential

Source: WHO Situation Reports; CDC travel notice, HSBC Business School, Tencent News, Sina news, Ipsos analysis

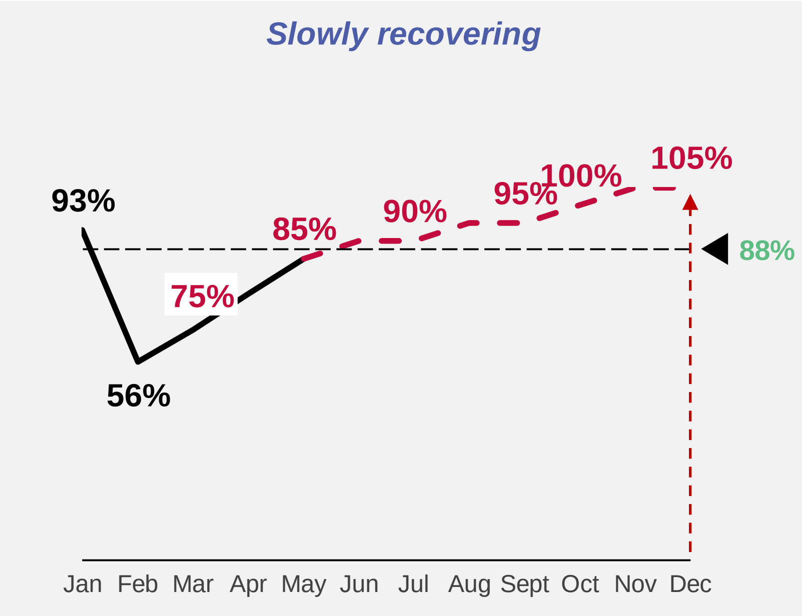
Due to regional outbreaks in March and April, recovery of medical services has slowed down; 2020 drop in hospital service is expected to be 10-12%

China outpatient volume % vs. 2019: -8% drop expected in 2020



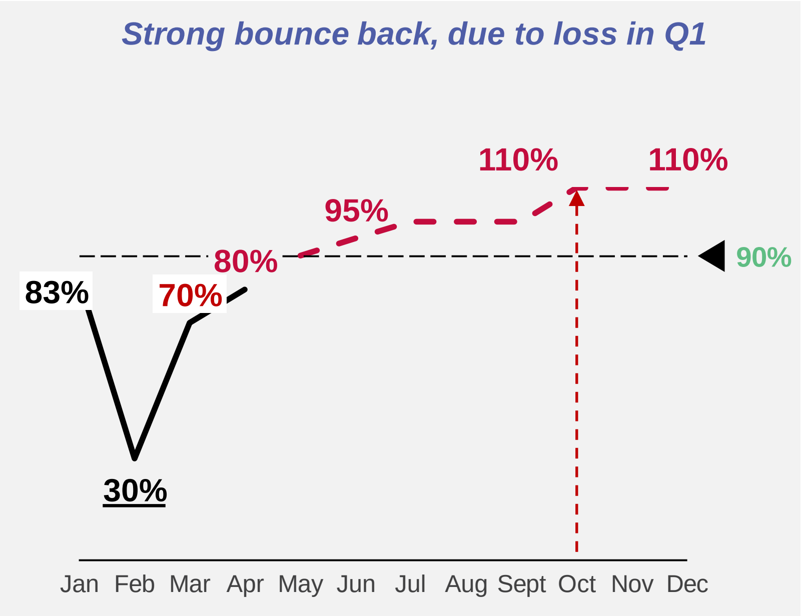
- 2020 outpatient volume in 33,000+ hospitals nationwide expected to decline by 8% vs. 2019, down to 7.9 billion patients
- Some provinces are more affected by imported cases, asymptomatic carriers and greater population mobility
- By April, tier 1&2 cities were slightly more affected

China inpatient volume % vs. 2019: -12% drop expected in 2020



- 2020 inpatient volume expected to be lower than 2019 by 12% (vs. +6-7% w/o COVID-19), down by 0.242 billion patients
- All public hospitals must conduct COVID-19 testing & CT imaging before admission & have limits on the # of patients per ward, slowing patient volume recovery

China surgery volume % vs. 2019: -10% drop expected in 2020



- 2020 surgery volume (excl. ambulatory) expected to be down by 10% vs. 2019 (vs. +10-12% w/o COVID-19), an increase of 68 – 69 Mn patients
- Surgery volume from May to Dec is expected to ramp up, leading to revenue generation

NB: based on the hypothesis of no nationwide secondary outbreak; data includes c. 12k public hospitals and c. 21k private hospitals

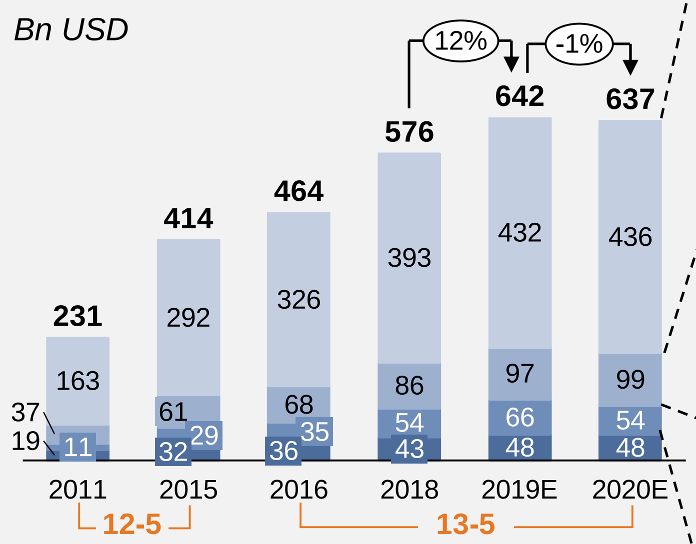
© Ipsos | Healthcare Centre of Excellence| June 2020 | Strictly Confidential

Source: Ipsos hospital monitoring database, Ipsos Analysis

Recovery of public hospital services is accelerated, with flat growth in revenue expected; private hospitals are most affected, declining by -19%

Healthcare institution revenue

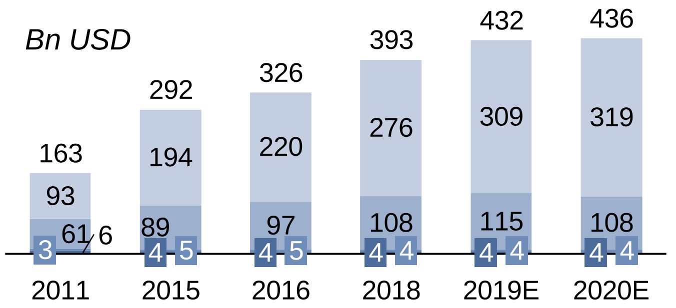
CAGR	12-5[1)]	13-5[2)]	19-20E
Public Hospitals	16%	8%	1%
Primary Healthcare	13%	10%	3%
Private Hospitals	26%	11%	-19%
Others	14%	8%	1%



- Growth of healthcare institutions' revenue in 2020 is expected to slow down, due to COVID-19
- Private hospitals are less resilient, due to smaller scale and weaker risk resistance capability, despite having been the fastest growing in terms of revenue during the 13th 5-year plan

Detailed revenue breakdown

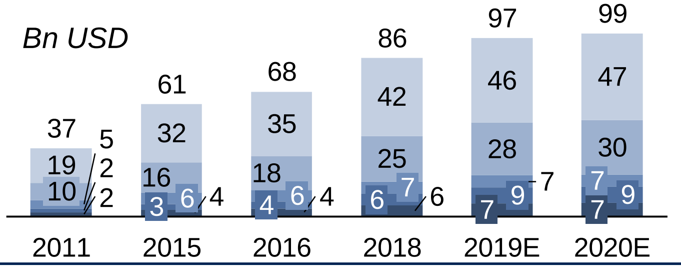
Public Hospital Revenue by Class



CAGR	12-5	13-5	19-20E
Class III	20%	10%	3%
Class II	10%	3%	-6%
Class I	9%	-5%	-2%
Others	-9%	0%	-2%

- Post COVID-19, Class III hospitals sped up recovery to minimize impact; Class II hospitals may suffer greater impact, due to limited patient volume; Class I hospitals benefit from policy on longer prescription validity, allowing drug dispensing for those with chronic disease

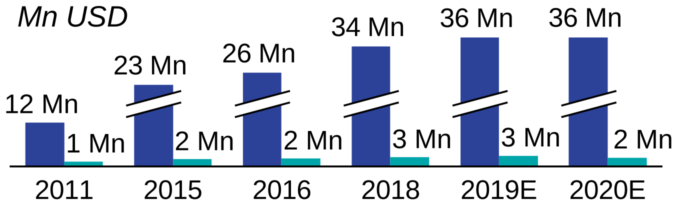
Revenue of Primary Healthcare Institutions by Type



CAGR	12-5	13-5	19-20E
Health Centers	14%	8%	3%
Community Hospitals	14%	13%	4%
Village Clinics	8%	1%	-2%
Outpatient Clinic	14%	24%	3%
Clinics	13%	15%	3%

- Post the outbreak, primary healthcare institutions may experience faster growth in the near and long term (5 year) future, benefiting from chronic disease management, online diagnostics

Average Revenue per Hospital: Public vs. Private



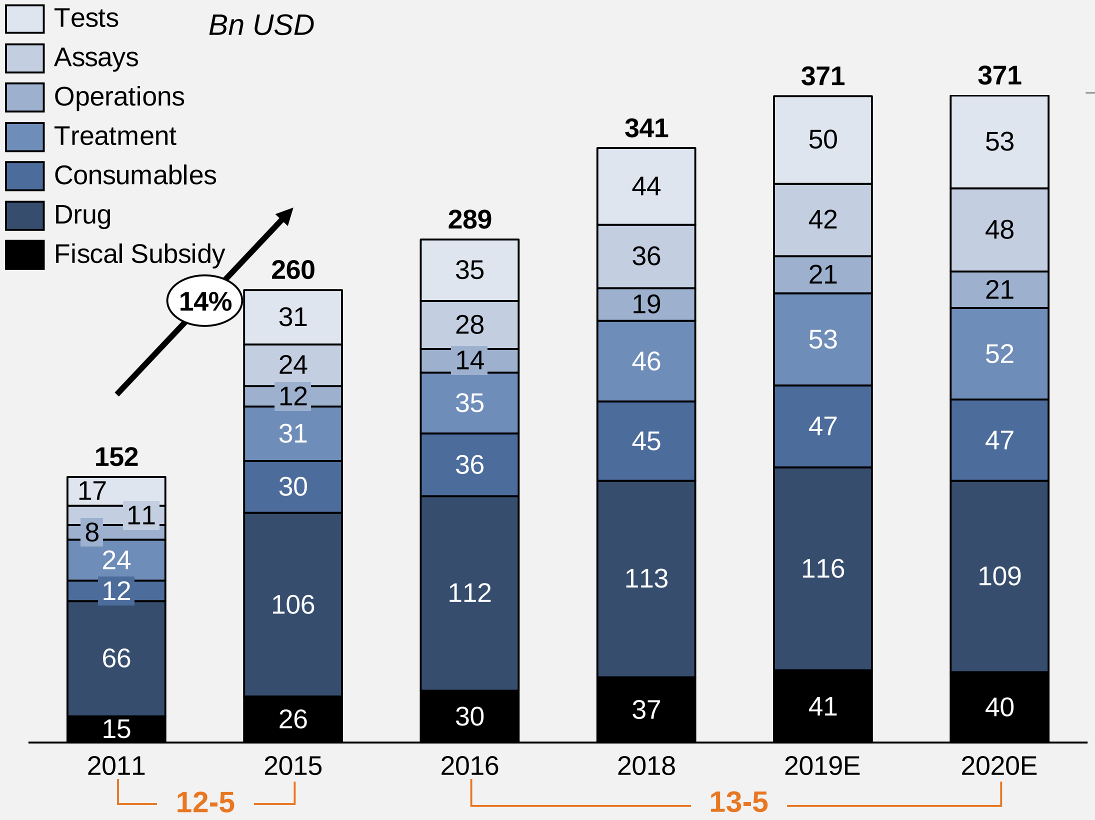
CAGR	12-5	13-5	19-20E
Public	*17%*	*8%*	*0.3%*
Private	13%	3%	-19%

- Private hospitals tend to have lower revenue, making them more vulnerable to cash flow disruptions and less resilient to the effects of the outbreak
- Market consolidation is expected among private hospitals

Note: 1) China's 12th five-year plan from 2011-2015 2) China's 13th five-year plan from 2016-2020 Source: China Health Statistics Year Book, Ipsos analysis

Only tests and assays are expected to maintain positive growth in 2020, both with double-digit growth in the past five years; drug sales are the most negatively impacted by COVID-19

Main revenue components of public hospitals in China



12-5 CAGR	13-5 CAGR	YOY 19-20E
17%	*11%*	*6%*
22%	*15%*	*15%*
9%	12%	-1%
7%	11%	-1%
27%	7%	0%
12%	0%	-6%
15%	8%	-2%

- Revenue of public hospitals has remained relatively stable; benefiting from mandatory COVID-19 testing for all inpatients, tests and assays are expected to experience faster growth in 2020, due to decline in inpatient volume, other components like drug, operations and treatment expect slower growth
- During the 13th 5-year plan, test, assays and consumables suffered from slower growth, while operations and treatment grew more rapidly, which is likely to continue so in the next 5 years

Growth drivers of main components

Tests	• Imaging contributes the largest portion • Outpatient : Inpatient = ~1:1 • Government suggests all fever clinics to be equipped with CT, but growth in 2020 still to slow down, due to patient volume drop in Q1
Assays	• Mostly from clinical labs • Current extensive COVID-19 testing means this is expected to outgrow last year • Current high growth rate may slow down during the next 5 years, due to stricter hospital policy on lowering service charge
Operations	• Denotes service charge for operations performed i.e. basal anesthesia, intra-vertebral canal surgery etc. • Slower growth in 2020, due to drop in cases in Q1; Expected long-term sustained growth
Treatment	• Include non-operative procedures e.g. subcutaneous injection and physiotherapy e.g. oxygen inhalation • Faster growth expected in the next 5 years
Consum-ables	• Mostly from consumables that could be billed individually e.g. anastomat • Outpatient : Inpatient=~1:10 • Future growth likely to drop due to volume based pricing and hospital cost control

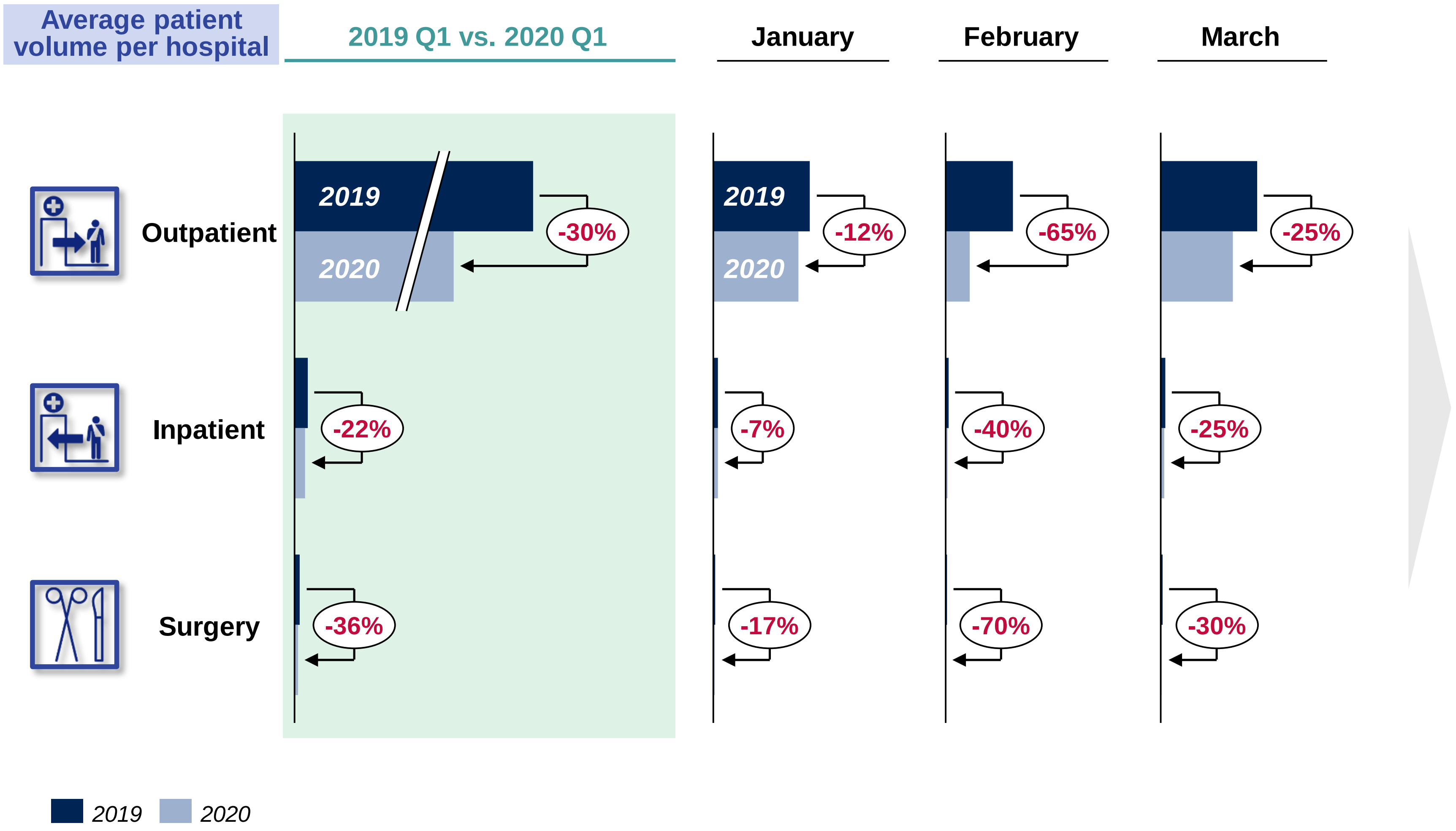
Source: China Health Statistics Year Book, China Merchants Securities Co Ltd, Ipsos analysis

Hospital Volume and Consumables Tracking: AN IPSOS STUDY (Q1 2020)

2

Ipsos

Hospital services are recovering in March, with patient volume climbing back up to address previously contained medical needs



Key takeaways

Faster recovery of outpatient volume, as many sought to fulfill medical needs largely unmet during peak of outbreak

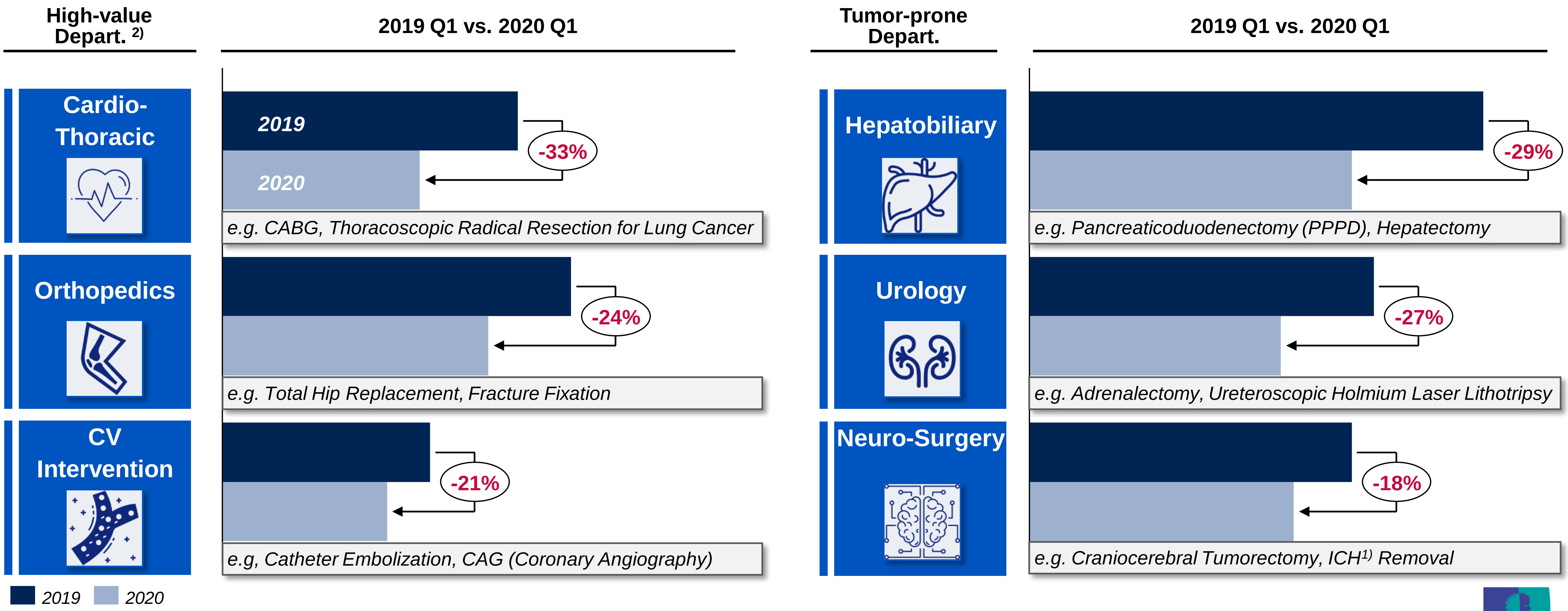
Relatively slower recovery of inpatient volume, due to strict admission screening and smaller ward capacity for safe patient distancing

Gradual ramp-up of surgery volume to prioritize the critical or pressing cases e.g. cancer, while clearing a backlog of the postponed elective ones

Source: Ipsos hospital monitoring database, Ipsos analysis

Overall, Q1 saw a decline of surgery volume across major departments, however this rate of decline is much lower than in January and February, signaling recovery

Average surgery volume evolution per hospital by procedure in Q1



Note: 1) intracranial hemorrhage 2) departments that have heavier usage of high value consumables

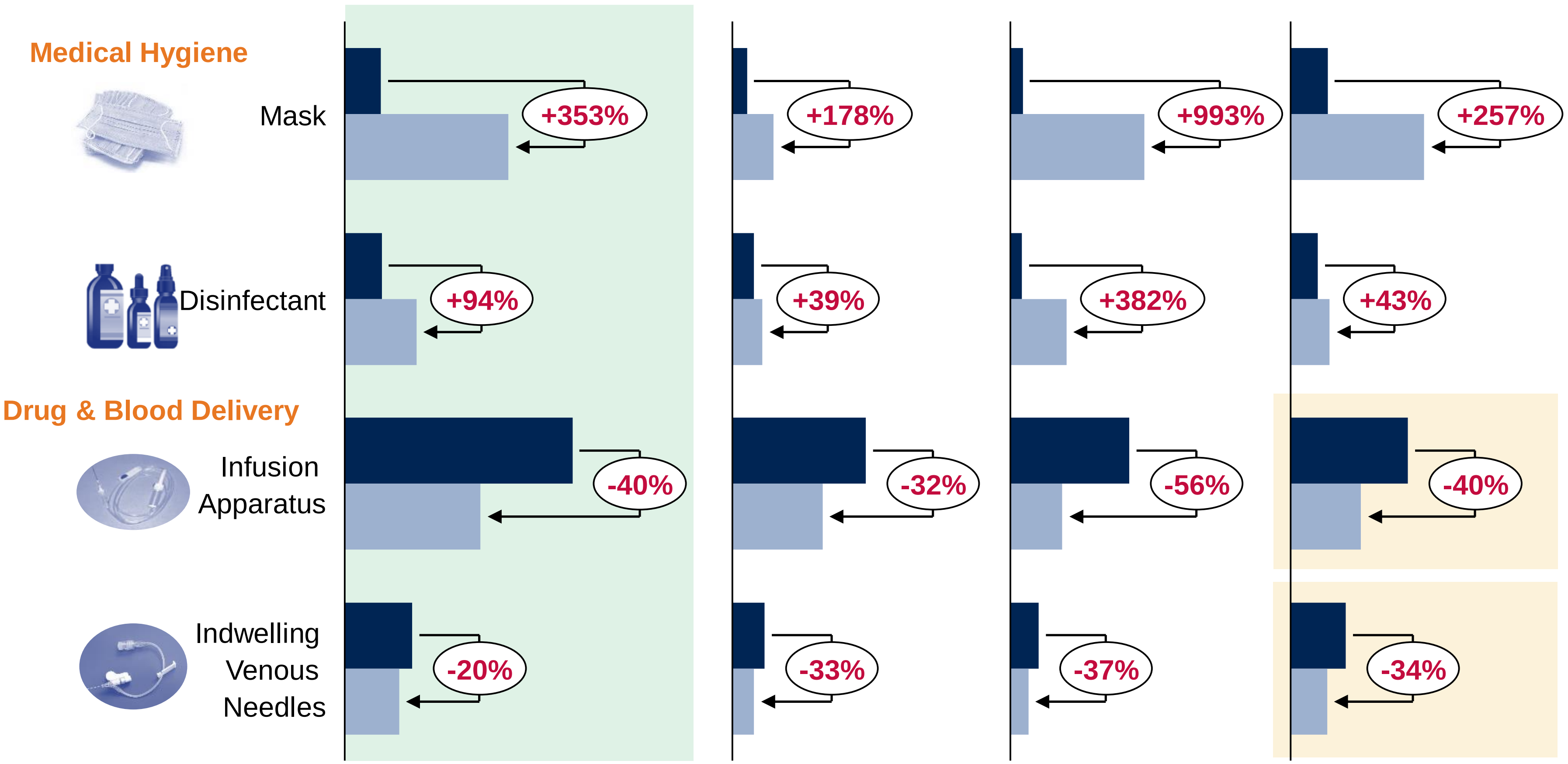
© Ipsos | Healthcare Centre of Excellence| June 2020 | Strictly Confidential

Source: Ipsos Hospital Monitoring Database, Ipsos Analysis

The surge in demand for masks & disinfectant both came down significantly in March, as the outbreak became gradually more contained & stockpiles were being used

Volume consumed in hospital | **2019 Q1 vs. 2020 Q1** | **January** | **February** | **March**

in unit consumed



2019 *2020*

NB: volume consumed covers all departments and outpatient clinics

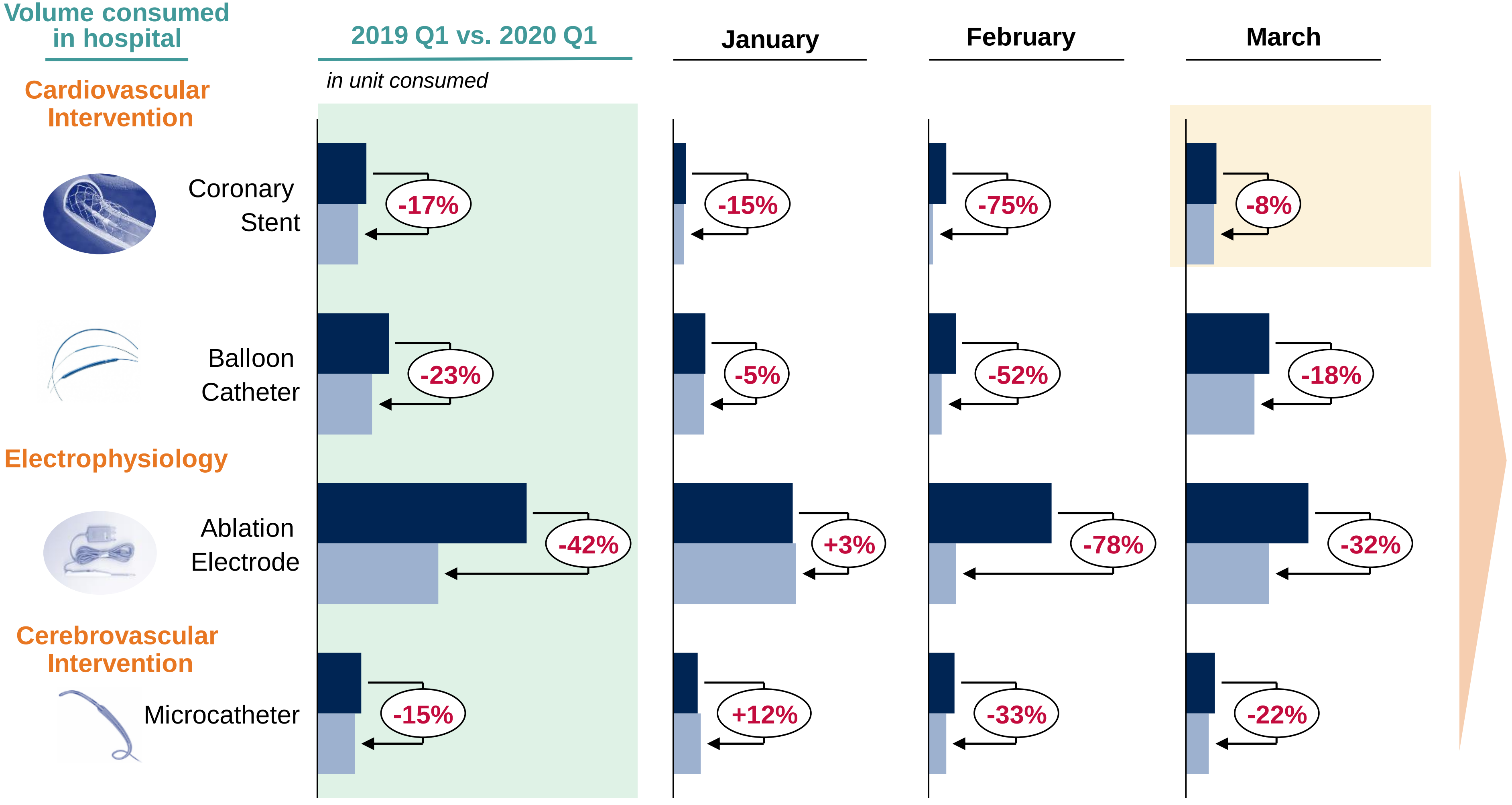
Key takeaways

- Due to the effective containment of COVID-19 in China, domestic demand for medical hygiene products increased at a much slower rate
- However export volume of masks surged as the pandemic worsened overseas
- Drug & blood delivery products have not yet recovered, with infusion apparatus down by -40% & indwelling venous needle by -34% in March YOY

© Ipsos | Healthcare Centre of Excellence| June 2020 | Strictly Confidential

Source: Ipsos Hospital Monitoring Database, Ipsos Analysis

High-value consumables (and their corresponding surgery volumes) have experienced a faster recovery than low-value consumables



2019 *2020*

NB: volume consumed covers all departments and outpatient clinics

Key takeaways

- As surgery volume came back up, high-value consumables recovered rapidly in March, compared to February
  - Consumption of coronary stents in March was down only -8% YOY, as interventional cardiovascular operations rapidly resumed
  - Consumption of balloon catheter, ablation electrode and microcatheter experienced a similar trend

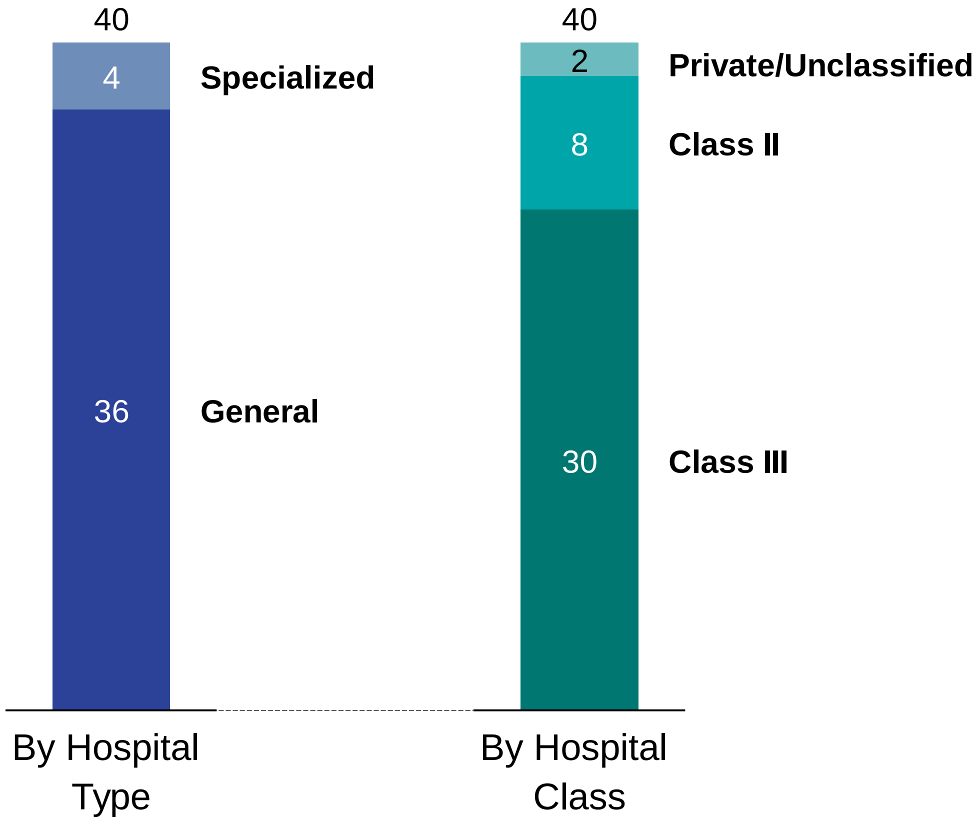
 © Ipsos | Healthcare Centre of Excellence| June 2020 | Strictly Confidential

Source: Ipsos Hospital Monitoring Database, Ipsos Analysis

The dataset covers a list of 40 hospitals across China, comprising mostly general and Class III hospitals

Hospital geographic coverage

Hospital category breakdown



© Ipsos | Healthcare Centre of Excellence| June 2020 | Strictly Confidential

THANK YOU!

Please contact us!

Ipsos MedTech Consulting Service

Peter Yang, Executive Director
Peter.yang@ipsos.com

Daisy Yuan, Consultant
Xizi.yuan@ipsos.com