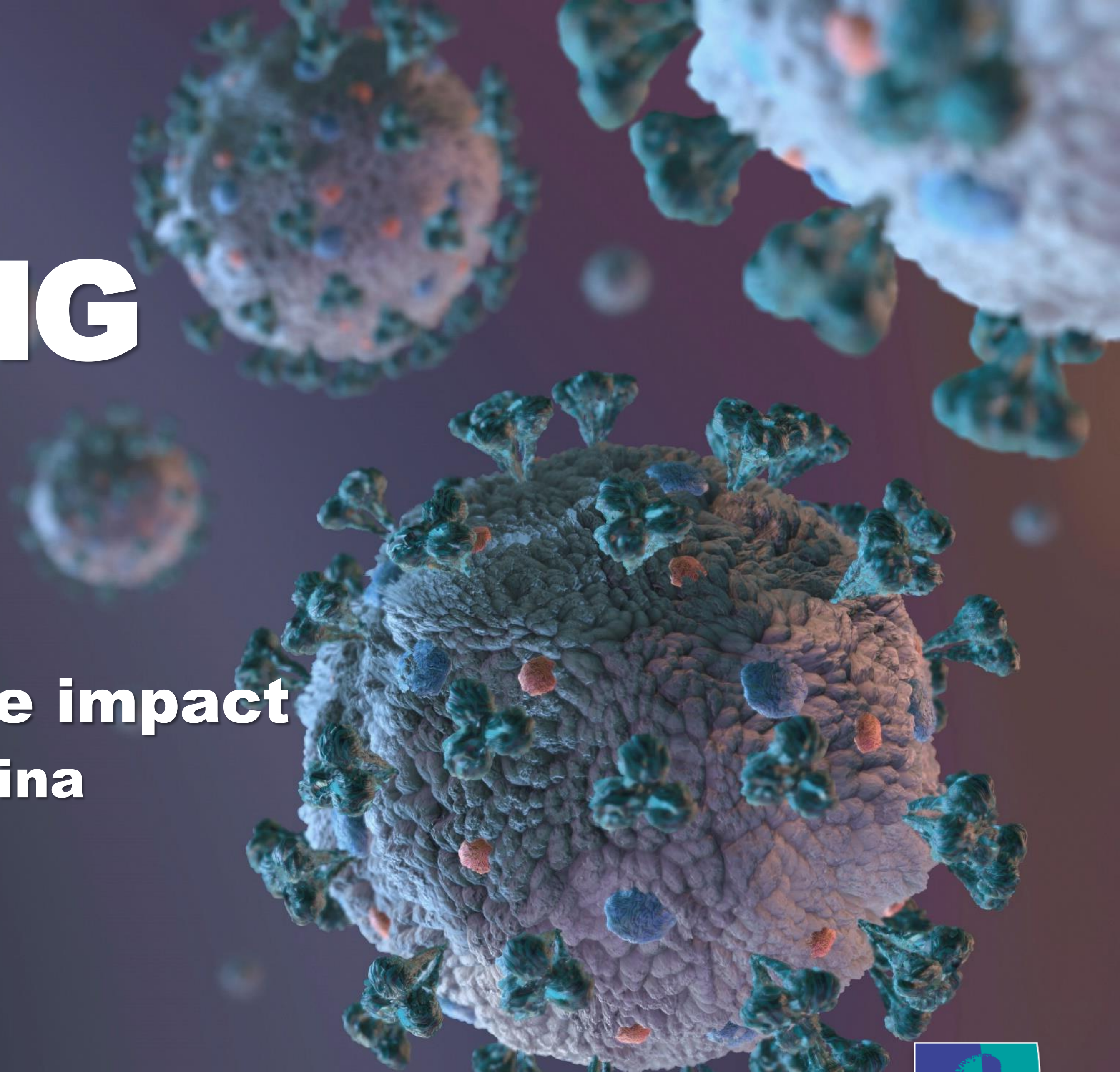
CONFRONTING COVID-19



An Ipsos perspective on the impact of the MedTech Industry in China

PART 2

GAME CHANGERS

Ipsos

Part 2 contents

- **COVID-19 global trends and impact on China's healthcare industry in Q1**
  - Global outbreak tracking, and potential risks and challenges
  - Impact on the value of healthcare in China, and expected recovery
  - Forecasting the speed of recovery for outpatient, inpatient and surgery volumes in China for 2020
  - Forecasting the impact on the medical devices & diagnostics market in 2020, and the market's subsequent development during China's14th Five-Year Plan

- **Hospital volumes and consumables tracking (Jan. and Feb. 2020): An Ipsos study, sampled from 40 hospitals in major provinces across China**
  - Extent of the impact on hospital outpatient, inpatient and surgery volumes
  - Year-on-year comparison of surgery volume in main departments
  - **Usage change in the volume of selected low and high value consumables**

COVID-19: GLOBAL TRENDS AND IMPACT ON CHINA’S HEALTHCARE INDUSTRY IN Q1

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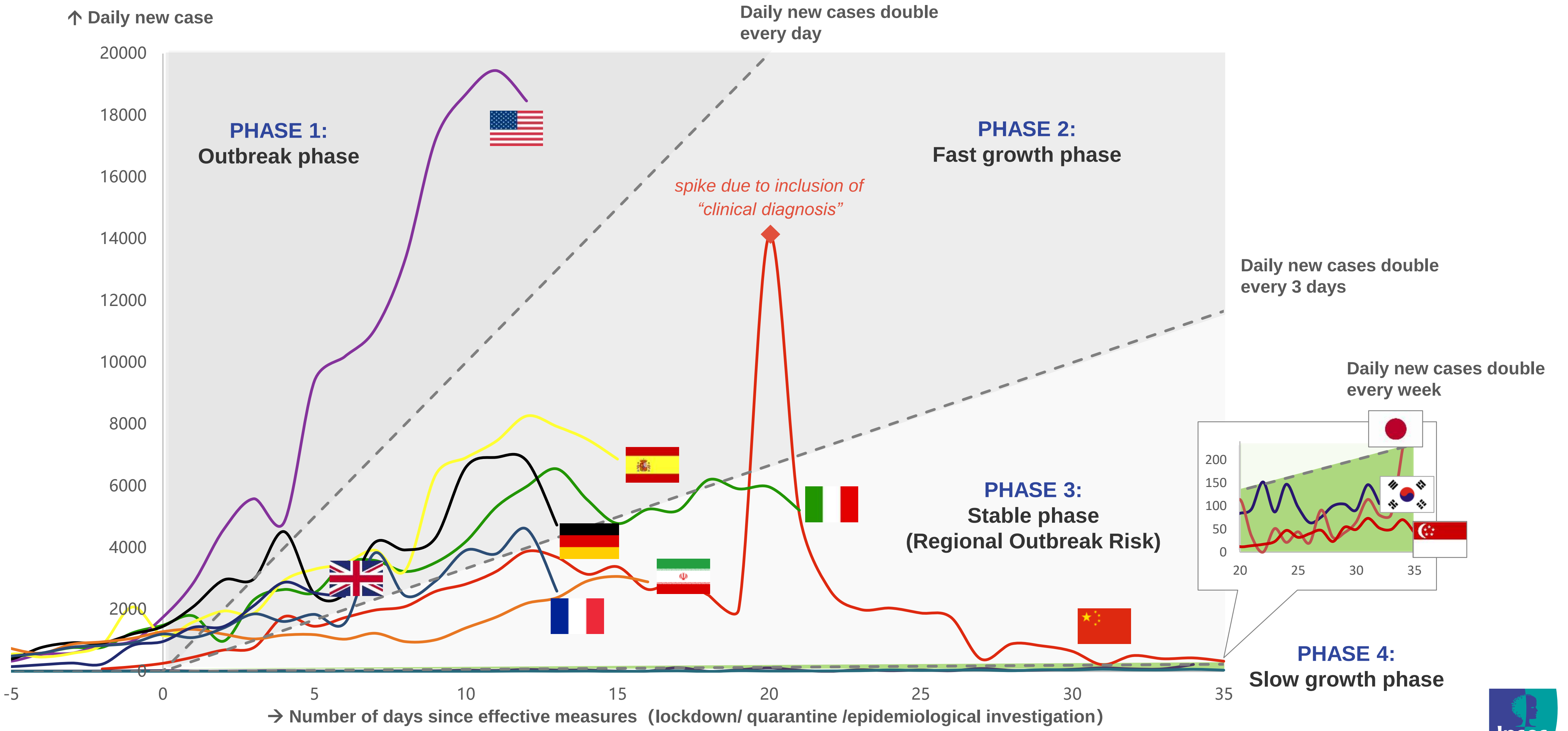
There are four phases to the COVID-19 outbreak; the most affected countries have taken effective measures to minimize the spread

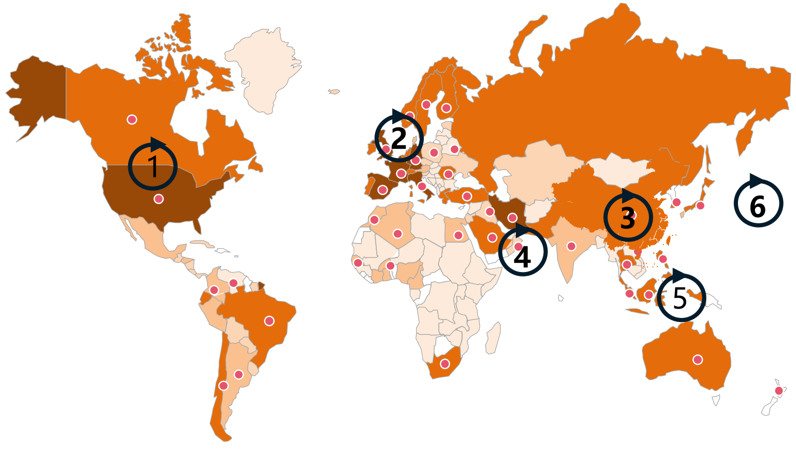


Source:1. WHO and official data as of March 30； 2. Ipsos Analysis

Europe and North America have become the "epicenters" of the pandemic, while others still face risk of regional outbreak clusters

6 major transmission complexes exist; the outbreak has shifted to local transmission mode globally:

- >10,000 active cases
- 1,000-9,999 active cases
- 500-999 active cases
- 100-499 active cases
- 10-99 active cases
- >10 active cases
- Local transmission



	Major Region	New Cases in Past 3 Days[1] (as of March 30th)	Total Cases[1]	Active Cases[1]	Mortality Rate[1]	Future Challenge
1	**North America –** Outbreak Phase	5,425 / 19,177 / 20,484	163,644	156,899	1.78%	Uncertainty around medical system capacity increases after comprehensive testing
2	**Europe –** Fast Growth Phase	41,528 / 37,646 / 36,038	400,055	326,420	6.08%	Exhaustion of medical resources
3	**China –** Stable Phase (Regional Outbreak Risk)	118 / 135 / 106	82,451	3202	4.02%	Increasing imported cases & asymptomatic COVID-19 carriers
4	**Middle East[2] –** Stable Phase (Regional Outbreak Risk)	2,807 / 3,682 / 3,844	46,236	30,516	6.10%	Increasing imported cases, lack of comprehensive testing, poor healthcare
5	**Asia (excl. China & Japan)[3] –** Slow Growth Phase	1,158 / 1,229 / 1,668	24,370	19,556	1.88%	Increasing imported cases
6	**Japan –** Stable Phase (Regional Outbreak Risk)	81 / 225 / 173	1,866	1,388	2.89%	Lack of comprehensive testing

Risk level : Low → High

Source: 1. WHO and official data as of March 30； 2. Eastern-Mediterranean WHO region; 3. Includes Western Pacific (excl China and Japan) and South-East Asia WHO regions; 4. Ipsos Analysis

The pandemic has caused significant disruption to R&D in China; however healthcare services and patient visits are beginning to recover

HEALTHCARE VALUE CHAIN IN CHINA

	Pharma/ MedTech R&D	Manufacturing	Distribution	Healthcare Service	Patients
Current situation in China	**20%** of clinical trials have been suspended, esp. those in Wuhan, nationwide COVID-19 designated hospitals, and nationwide respiratory & infection departments **70%** of clinical trials have been postponed	**99%** of pharma and medical manufacturers have restarted operation, especially the medium-large- scale plants Aggravating impact on imports, as the outbreak overseas exacerbated	**99%** of national pharmacy distributors and local distributors have returned to operation by end of Q1	Inpatient volume has recovered to **65%** of normal level, outpatient to **85%** ; hospital capacity is in recovery as medical staff that were dispatched to Hubei return **90%** physical examination service is still in early recovery	**>70%** 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 **99%** patients postponed physical exam.
China recovery prospect	**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	**>60%** of pharma and MD&D imports' supply will be delayed, especially biologics, blood/serum, vaccine, wound management, radiology equipment from EU and USA, etc.	Logistics capacity and hospital SPD service to be fully recovered	**99%** of outpatient and inpatient servicing capacity will recover to normal levels in Q2, except Hubei **70%** recovery of hospital service capacity expected in Q2 in Hubei province	**~99%** of those requiring medical treatment will gradually visit hospitals/clinics in Q2, except Hubei Physical examination will gradually recover in Q2

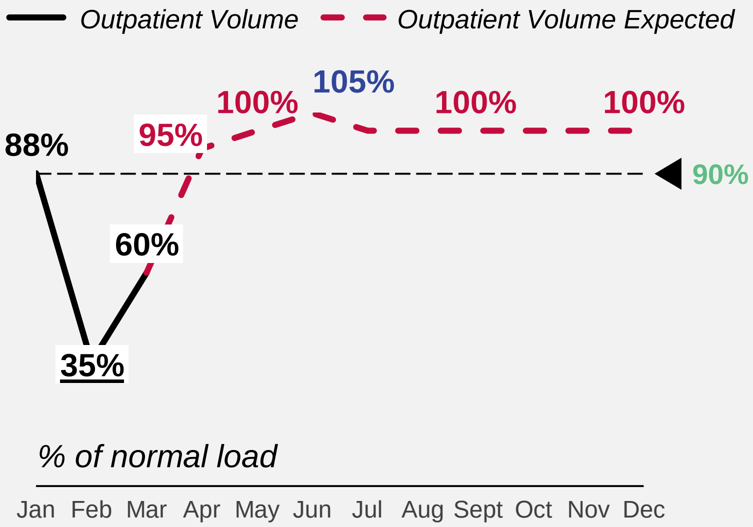
Impact: *HI* *MED* *LOW*

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

Patient volumes in Q1 2020 dropped, due to COVID-19. However, hospital intakes started to recover since late March, limiting annual drop to <10%

China outpatient volume recovery: -10% drop expected in 2020

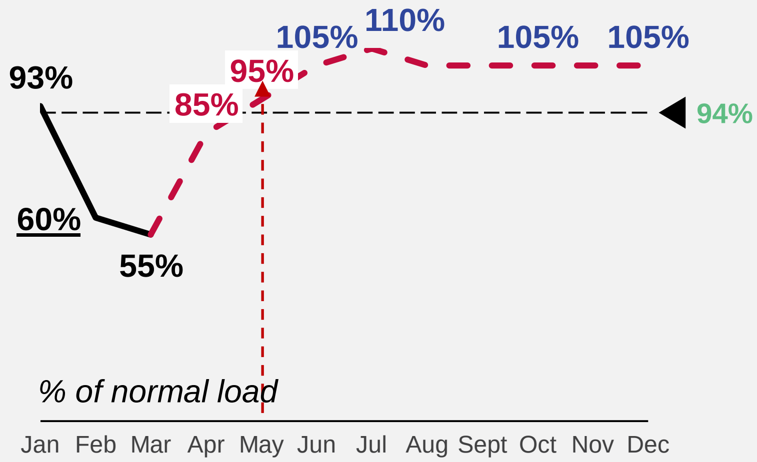
Temporary rebound to compensate



- 2020 outpatient volume in 33,000+ hospitals nationwide expected to decline by 5-6% vs. 2019 (vs. +4-5% w/o COVID-19)
- Heavier impact on Class III hospitals than Class II & I
- Tier 1 & 2 cities more affected than lower tier, due to more imported cases handling & greater pop. mobility

China inpatient volume recovery: -6% drop expected in 2020

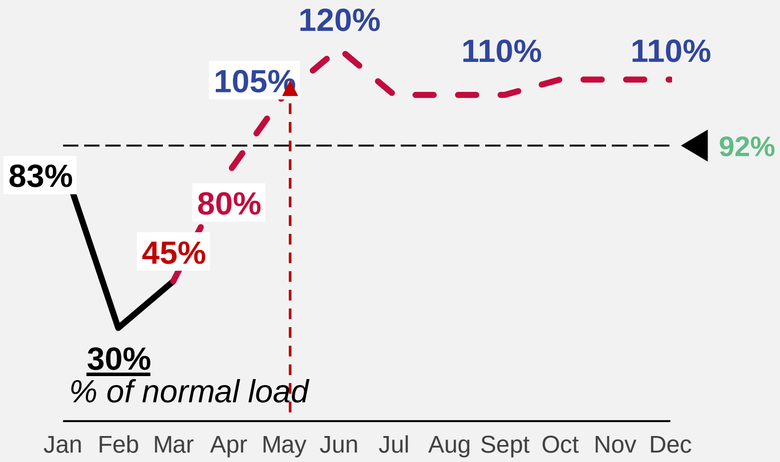
Continuously making up for volume lost in Q1



- 2020 inpatient volume expected to be on par with 2019 (vs. +6-7% w/o COVID-19)
- Slower recovery vs. outpatient, as Class III hospitals are required to limit # patient/ward in April & May
- 2020 H2 hospitals very likely to take measures like increase ward turnover to buffer revenue loss earlier

China surgery volume recovery: -8% drop expected in 2020

Strong bounce back due to loss in Q1

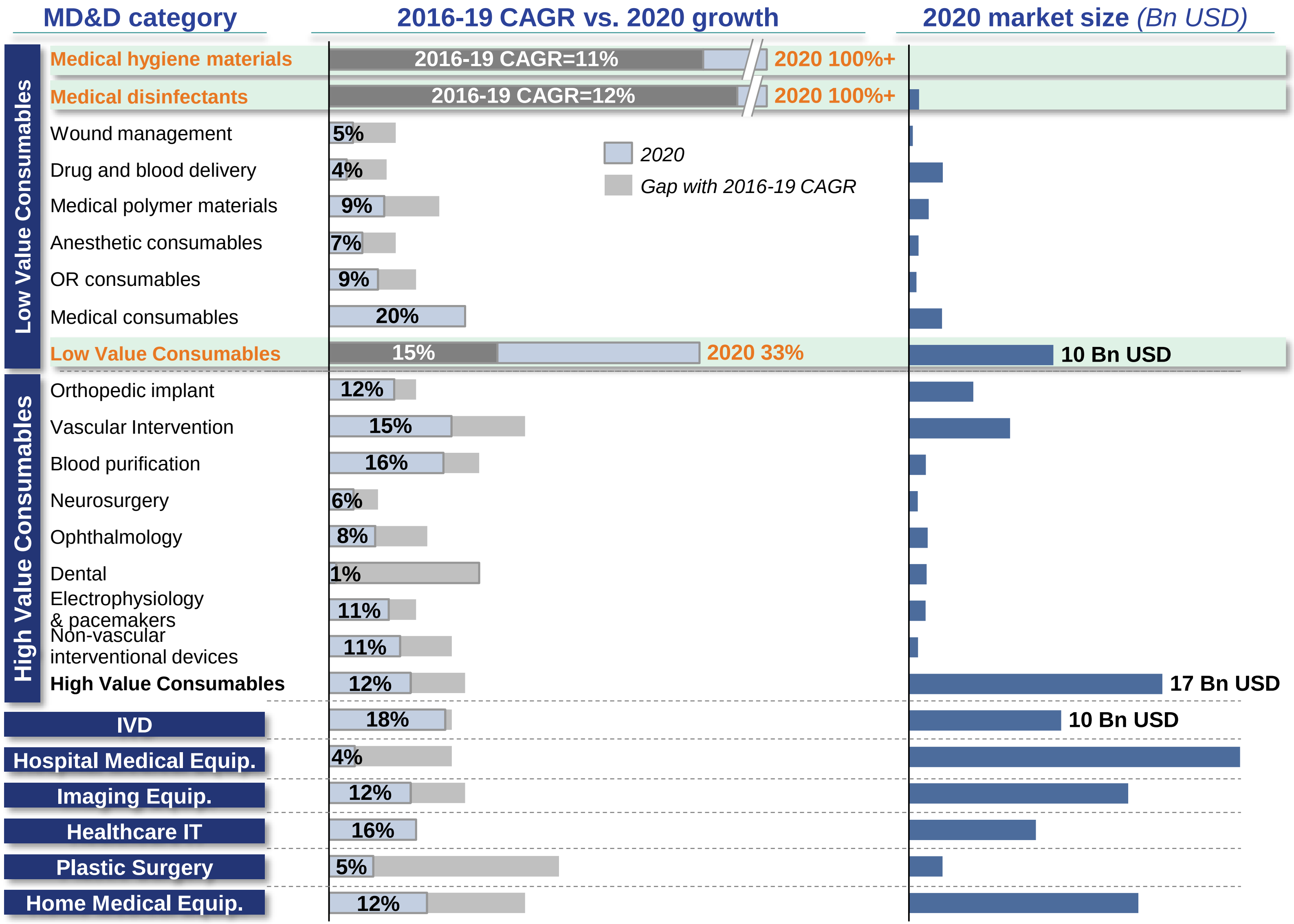


- 2020 surgery volume (excl. ambulatory) expected to go up by 2-5% vs. 2019 (vs. +10-12% w/o COVID-19)
- Slower recovery vs. inpatient due to strict nosocomial infection control & complex surgery mgmt. procedures
- Surgery volume from May to Dec. expected to ramp up for revenue generation

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

Source: Ipsos hospital monitoring database, Ipsos Analysis

In 2020, China expects higher growth than initially forecasted in low-value consumables and IVD segments; healthcare IT is expected to benefit from hospital digitalization



Large growth potential in China

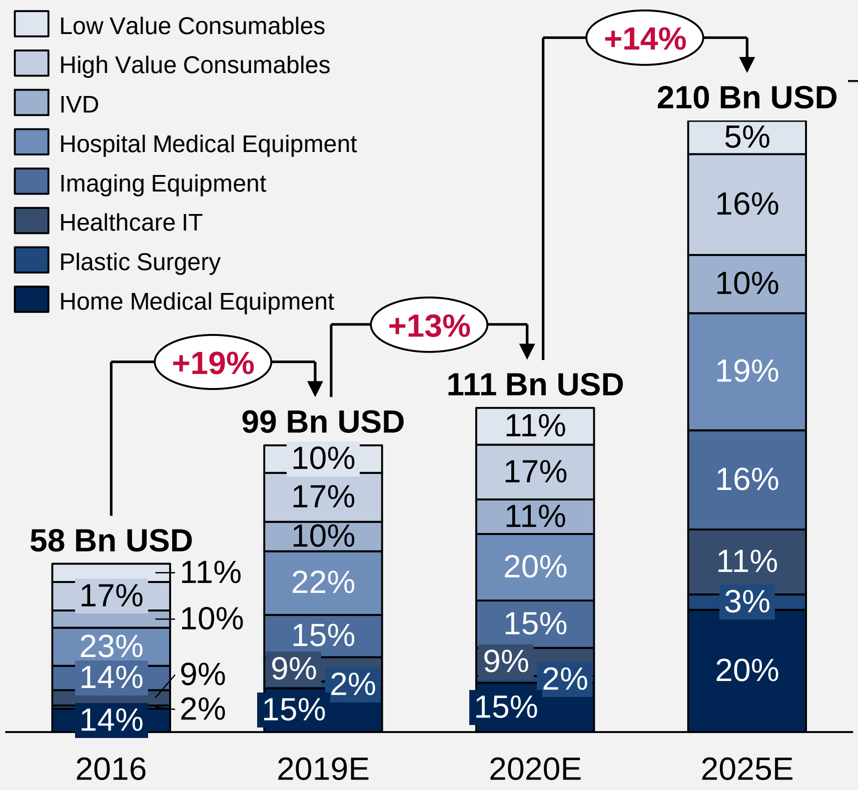
- Surging demand for low-value consumables now presents risk for redundant stock after Q3
  - ✓ **>300% growth of medical disinfectants and hygiene materials e.g. masks and protective suits, expected in 2020 H1**
- Accelerated hospital digitalization：
  - ✓ **By 2020 YE, Class III hospitals' electronic medical record system should reach level 4, Class II hospitals to reach level 3**
  - ✓ **Further digitization has been prompted by development of online diagnosis, hospital interconnectivity, DRGs (Diagnosis Related Groups) payment system & medical alliance**
- Increasing demand for COVID-19 point of care tests & reagent kits stimulates growth of the IVD market; more fever clinics being set up and ongoing medical service capability buildings in lower tier cities also help sustain IVD growth
- Short-term negative impact is seen on high-value consumables, with rapid rebound expected in Q2
  - ✓ **Orthopedics, cardiovascular & blood purification are expected to have a fast recovery, and gradually slow in H2**
- Rising domestic demand for medical and imaging equipment in Q1, while a surge in export is expected in Q2; hospital equipment purchase and renewal will be delayed due to revenue loss in Q1

Source: <China MedTech Blue Book 2019>, EvaluateMedTech ：World Preview 2018, Outlook to 2024, Ipsos MedTech Sales Monitoring Database

MD&D growth in 2020 and during China's 14th 5-year Plan is expected to stay at ~13-14% p.a., with accelerated concentration in sub-categories

China MD&D market size 2020 and development forecast during 14th 5-year Plan

Bn USD, ex-factory price

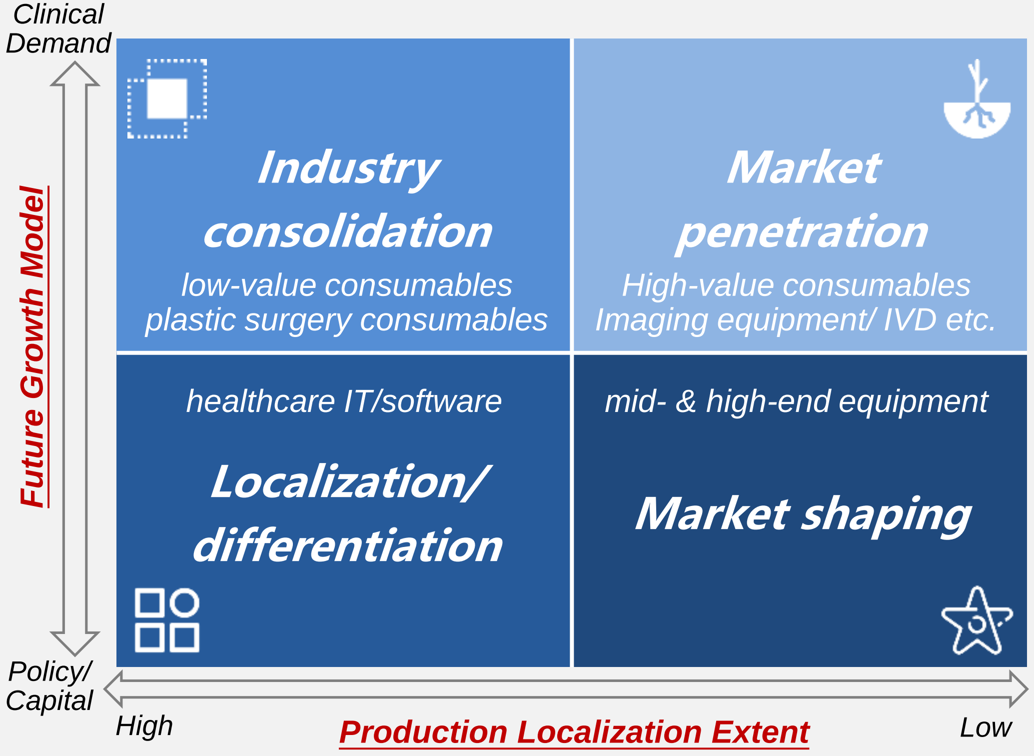


fast growing

2020 Growth	CAGR 2020-25
33%	-2%
12%	13%
18%	11%
4%	12%
12%	16%
16%	18%
3%	18%
13%	20%

- MD&D market has been steadily growing, but expected to slow down to 13% in 2020
- During the 14th 5-year Plan, different categories of consumables are to develop differently, with imaging, healthcare IT, home medical equipment and plastic surgeries maintaining fast growth, while low-value consumables may drop to -2% p.a.

MD&D market strategic outlook



- **MD&D market is expected to further consolidate and concentrate during the 14th 5-year Plan**, driven by policies that encourage smart hospitals, better medical resource in lower tier cities etc., flourishing capital markets and expedited localization

Source: <China MedTech Blue Book 2019>, EvaluateMedTech : World Preview 2018, Outlook to 2024, Ipsos MedTech Sales Monitoring Database

HOSPITAL VOLUME AND CONSUMABLES TRACKING IN JAN. AND FEB. 2020: AN IPSOS STUDY

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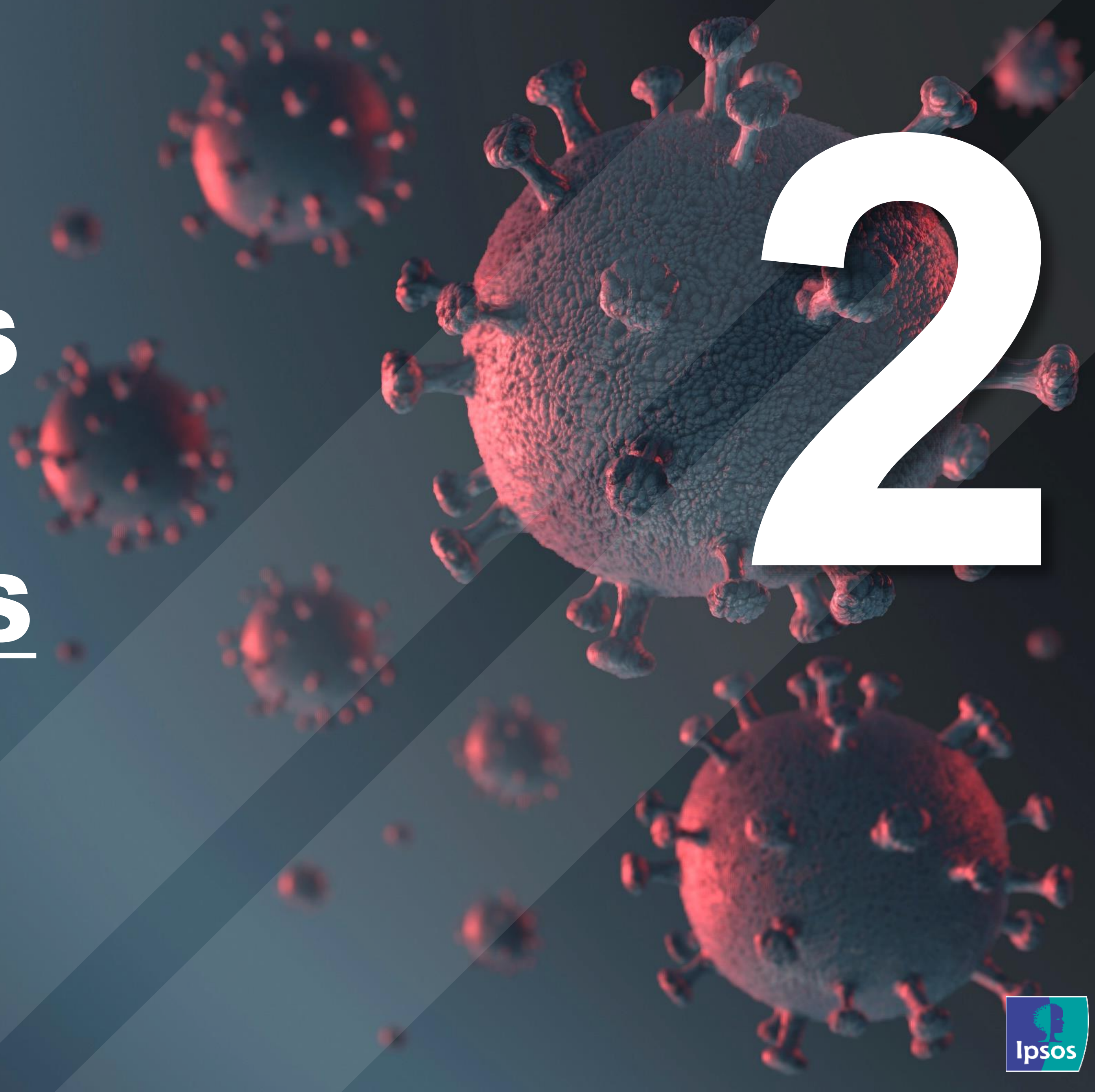
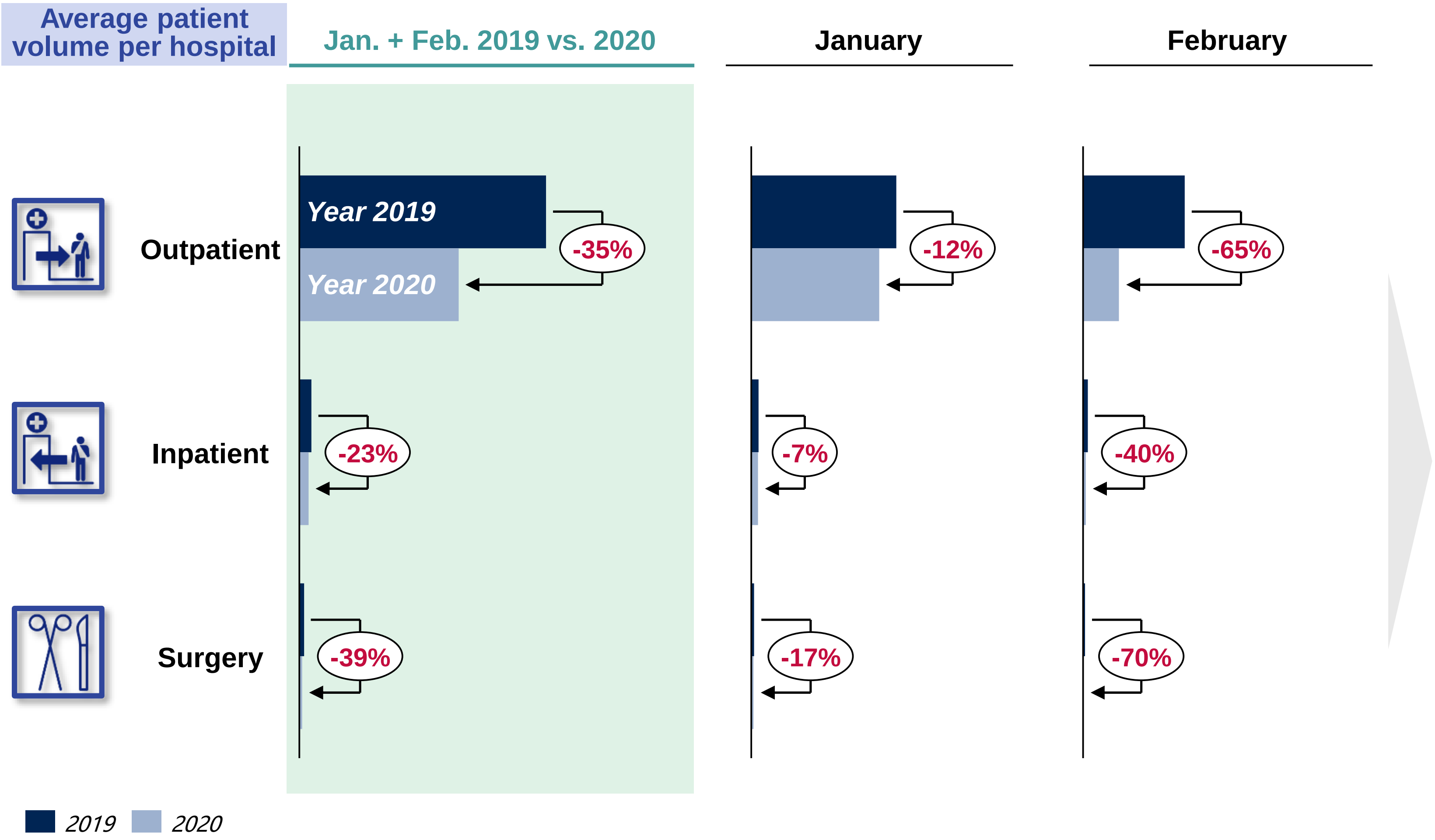


Due to the allocation of resource to COVID-19 and fear of infection, the number of hospital visits declined in January and February



Key takeaways

Outpatient volume experienced the sharpest drop, exacerbated in February; affected by hospital limiting traffic & new availability of online diagnosis

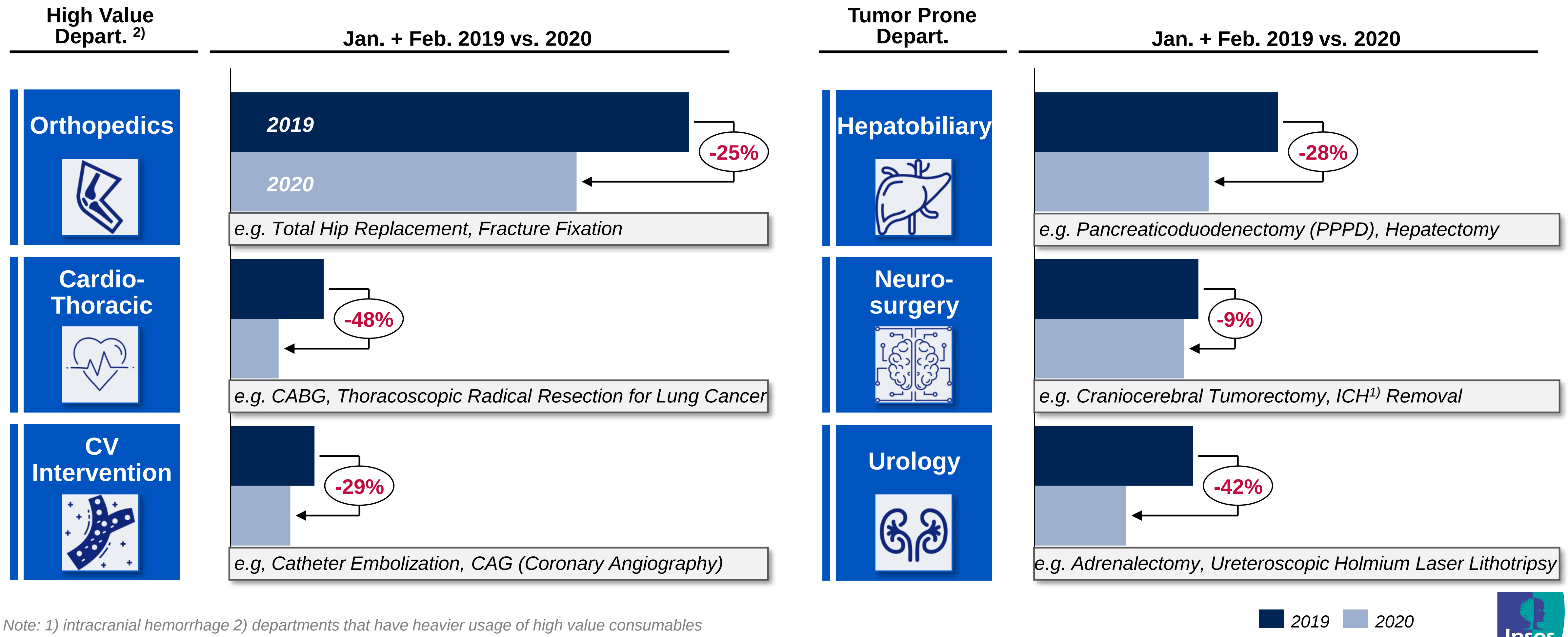
Inpatient volume declined with much fewer operations being performed, but to a lesser degree as hospital stay is still mandatory for many patients

Surgery volumes suffered a considerable drop as well, with many non-urgent / non-critically ill cases being postponed due to medical resource shift to COVID-19

Source: Ipsos Hospital Monitoring Database, Ipsos Analysis

Surgery volumes in all major departments dropped in January & February, as many were postponed, except those addressing critical conditions

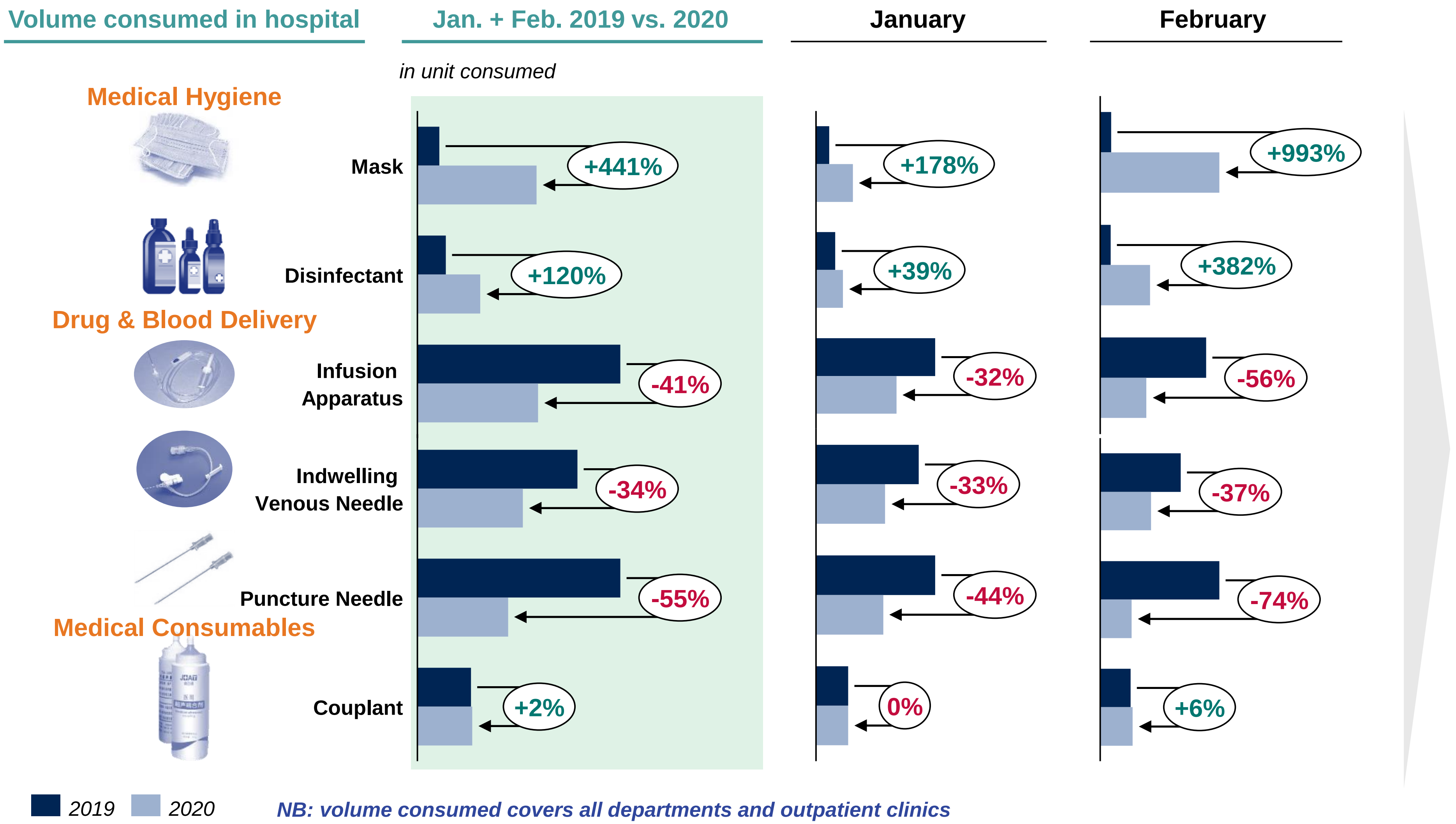
Average surgery volume per hospital by procedure



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

Source: Ipsos Hospital Monitoring Database, Ipsos Analysis

Medical hygiene consumables experienced explosive growth in February, with masks reaching growth of 993%



Key takeaways

Surging demand for medical hygiene materials, driven by COVID-19 outbreak

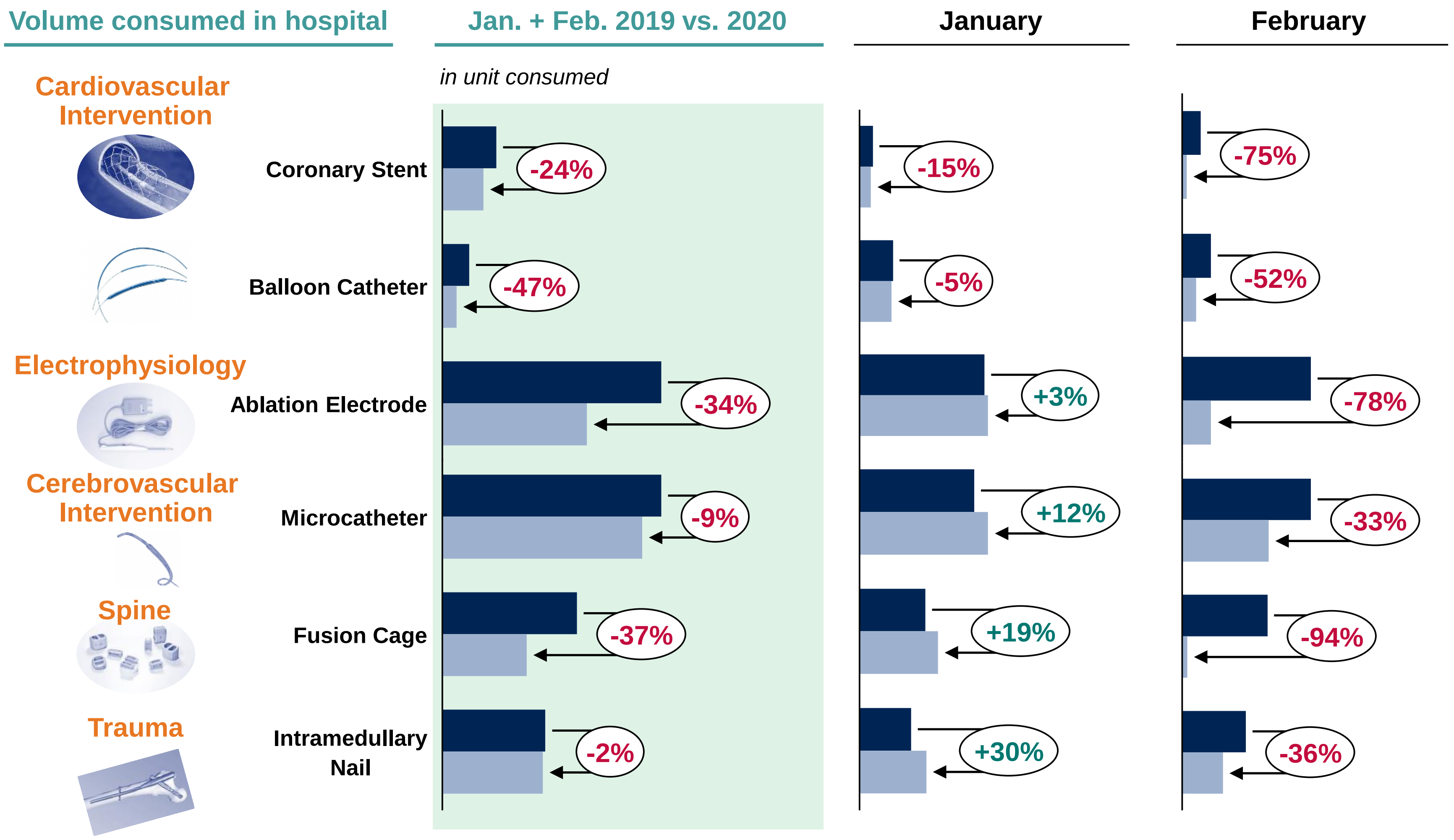
Consumption of drug and blood delivery consumables was down by -44%, largely affected by decrease in outpatient and inpatient volume

Couplant usage varied with ultrasound usage, (less affected as it is a non-invasive examination)

NB: volume consumed covers all departments and outpatient clinics

Source: Ipsos Hospital Monitoring Database, Ipsos Analysis

High-value consumable volumes, such as cardiovascular interventions, drastically declined



2019 2020

NB: volume consumed covers all departments and outpatient clinics

Key takeaways

Consumption of cardiovascular intervention and electrophysiology consumables plunged in line with cardio-thoracic surgeries, esp. in February

Cerebrovascular consumables were less affected as neurosurgery related operations tend to be more urgent and critical

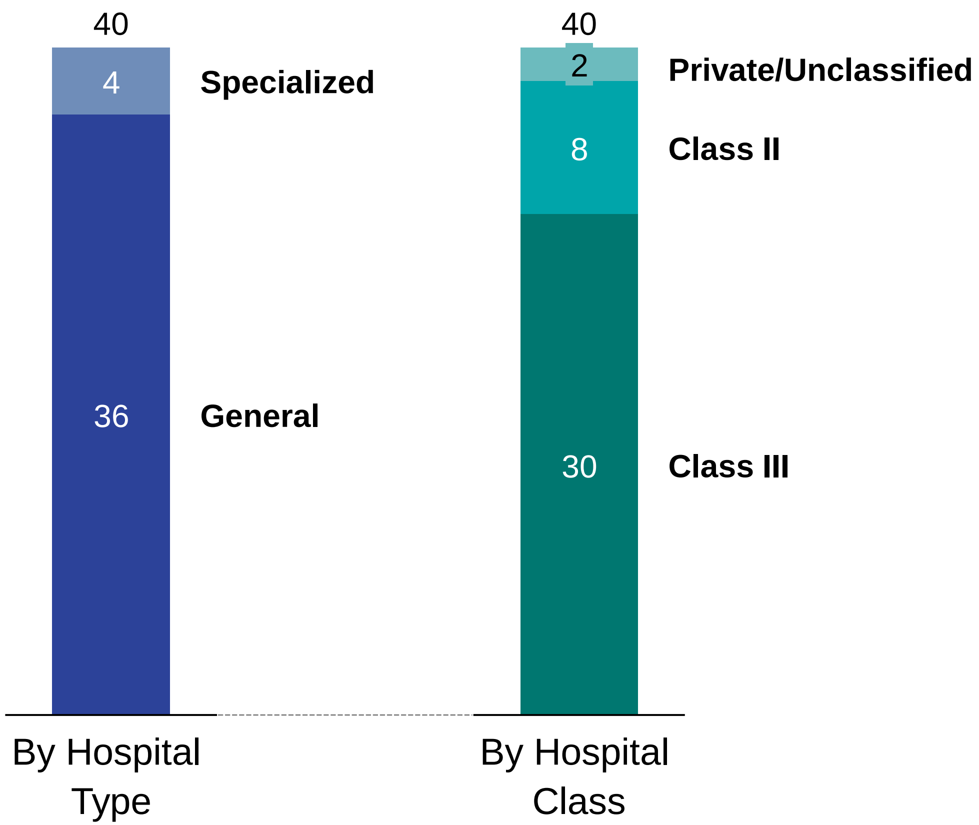
Consumption in the spine category plummeted in February; the negative impact on orthopedic consumables is most likely to be **short term**

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



THANK YOU!

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