

INDUSTRY OVERVIEW

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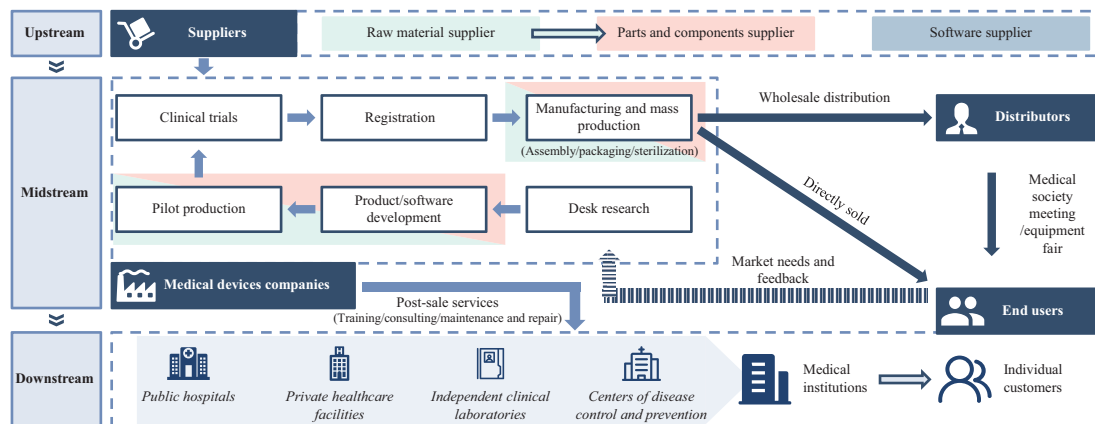
MEDICAL DEVICE INDUSTRY

The medical device industry offers a diverse array of products, including both equipment and consumables, spans various medical fields such as life support, medical imaging, minimally invasive intervention and in vitro diagnostics. With the advancement of information and intelligent technologies, the industry has expanded into healthcare IT systems, such as remote medical systems, hospital information systems and clinical trial management systems. Continuously evolving with market trends, the medical device industry is advancing diagnostic and treatment capabilities, enhancing user experiences, and progressing towards more precise and intelligent healthcare solutions. The medical device market is generally characterized by large multinational corporations with comprehensive product lines and integrated capabilities serving diverse clinical departments globally, and smaller companies typically focus on specific domains.

The global medical device market has consistently shown rapid growth trends, primarily driven by several key factors: (i) an increasing aging population and a growing prevalence of chronic diseases have spurred market demand; (ii) the expansion of healthcare infrastructure in emerging markets, including the construction of new hospitals and the addition of intensive care units (“ICUs”) and hospital beds, has fueled demand for medical devices; (iii) technological advancements and the introduction of healthcare IT systems have led to market demand iteration; (iv) increased patient affordability has boosted the willingness to consume healthcare products and services; and (v) favorable regulatory and policy incentives support industry development. As a result, the global medical device market increased from US\$464.2 billion in 2018 to US\$675.1 billion in 2025, at a CAGR of 5.5%, and it is expected to reach US\$888.6 billion in 2030, at a CAGR of 5.6% from 2025. The medical device market in China increased from RMB562.9 billion in 2018 to RMB1,144.7 billion in 2025, at a CAGR of 10.7%, and it is expected to reach RMB1,719.2 billion in 2030, at a CAGR of 8.5% from 2025.

Value Chain of the Medical Device Market

The value chain of the medical device market typically includes upstream suppliers, medical device companies, distributors, and end customers.



Source: Journal of Engineering Studies; CIC Report

INDUSTRY OVERVIEW

- **Suppliers.** Suppliers provide medical device companies with the necessary raw materials for production. For life support products, the primary raw materials include medical-grade plastics, electronic components and accessories. For minimally invasive interventional products, the main raw materials are medical-grade stainless steel, titanium, and specialized polymers. For in vitro diagnostics products, the key raw materials include reagents, enzymes, substrates, microsphere, magnetic beads, primer and probes. Additionally, common materials such as packaging materials and casings for devices are also essential across all product categories, ensuring the safe transport and durability of the medical devices.
- **Medical Device Companies.** Medical device companies are responsible for the R&D, registration, and production of their products. In terms of sales, these companies typically utilize a combination of distribution channels and direct sales methods. Medical device companies also take on the responsibilities of after-sales service for their products.
- **Distributors.** Medical devices are primarily marketed through distributors. Under the distribution model, distributors either sell medical devices directly to medical institutions and other end customers through their own sales channels or engage sub-distributors to extend their reach.
- **Customers under OEM/ODM Model.** Medical device companies may utilize the OEM/ODM model in addition to traditional distribution and direct sales models. Under the OEM/ODM model, a medical device company is commissioned by OEM/ODM clients to design, produce and supply products, which are then further processed and packaged by these clients to be sold under their own brands.
- **End Customers.** Hospitals are the primary end customers for medical devices. Other end customers also include diagnostic centers, community health centers, disease control and prevention centers and individual users.

Entry Barriers to the Medical Device Market

Entry barriers to medical device market include the following:

- **Technical barriers and R&D risks.** Established market participants have accumulated years of technology and know-how, industry experience and in-depth understanding of the clinical needs of different product lines and markets. In addition, R&D activities require significant expenditures and carry inherent uncertainties. Companies in the early stages of development often lack the experience necessary to manage these challenges effectively.
- **Strict regulatory approval processes.** In China, particularly for high-risk Class III devices, a stringent clinical testing and marketing registration process is mandatory. In the U.S., the FDA regulates the approval processes, demanding proof of both safety and efficacy for new devices. In Europe, the pre-market evaluation mainly requires proof of safety for new products. New manufacturers must navigate complex regulatory landscapes and meet high compliance standards to launch their products.
- **Establishment of solid sales channel.** The sale of medical devices depends heavily on established distribution and sales channels. Particularly for public medical institutions, procurement processes are subject to governmental regulations and policies, such as centralized procurement requirements. New entrants need to invest significant time and resources to build a qualified distributor network to navigate these complexities and successfully get their products accepted into hospitals.

INDUSTRY OVERVIEW

- ***Comprehensive product portfolio and solutions.*** Different medical conditions and treatments require specialized device specifications. Offering a comprehensive product portfolio ensures compatibility and provides tailored solutions in one package, which is favored by healthcare professionals. This integrated approach enhances R&D, manufacturing, and commercial efficiencies, creating a competitive advantage that new entrants find challenging to match.
- ***High barriers in strategic acquisition.*** The medical device industry is highly fragmented and technologically diverse, where becoming a competitive comprehensive solutions provider often requires targeted strategic acquisitions to build a broader product portfolio and technology stack. However, such acquisitions in the medical device industry come with inherent challenges, such as clinical approval pathways, regulatory alignment, and post-acquisition integration of R&D and production capabilities. As a result, only companies with deep sector expertise, strong regulatory know-how, and seasoned M&A experience are typically capable of executing and integrating such acquisitions effectively.

LIFE SUPPORT

Life support medical devices are mainly utilized in the ICUs, operating rooms and emergency rooms, including infusion systems, anesthesia machine, airway management equipment, monitors, oxygen concentrators, pulmonary function testing equipment, venous thromboembolism (“VTE”) prevention equipment and others.

The global life support medical device market has grown from US\$49.2 billion in 2018 to US\$80.4 billion in 2025, at a CAGR of 7.3%, and it is expected to increase to US\$110.6 billion in 2030, at a CAGR of 6.6% from 2025. Similarly, the life support medical device market in China has grown from RMB31.1 billion in 2018 to RMB60.9 billion in 2025, at a CAGR of 10.1% and it is expected to further increase to RMB92.4 billion in 2030, at a CAGR of 8.7% from 2025. In 2025, the top ten market players accounted for approximately 44.7% of the life support market in China, in terms of sales value.

Medication Delivery

The medication delivery system comprises equipment products including pump devices, infusion workstations and intelligent management systems, as well as related consumable products.

- ***Pump devices and consumables.*** The pump devices are automatic and controllable infusion devices, which use mechanical driving force to accurately control the drops or the flow rate of the infusion, ensuring precise and safe delivery of the dose into the patient’s body. The pump devices primarily include infusion pumps, syringe pumps, ambulatory pumps and enteral feeding pumps. Related consumables primarily include infusion tubing sets, nutrition bags and other pump-related consumables.
- ***Infusion workstations.*** The infusion workstations, designed to be used alongside infusion and syringe pumps, offer a modular system that facilitates the flexible combination of infusion devices. These workstations allow for the easy adjustment of the number of pumps based on infusion requirements, and their intelligent cascading feature supports automatic, continuous infusion, reducing the risks associated with frequent medication changes and precisely controlling dosages.
- ***Infusion management systems.*** Infusion management systems collect and transmit real-time data from syringe pumps, infusion pumps, and infusion workstations across different wards. This allows for continuous monitoring of the operational status of each device, ensuring efficient and effective management of the infusion process.

INDUSTRY OVERVIEW

Market for Medication Delivery Systems

The global medication delivery system market has grown from US\$5.1 billion in 2018 to US\$9.0 billion in 2025, at a CAGR of 8.4%, and it is expected to reach US\$13.5 billion in 2030, at a CAGR of 8.4% from 2025. The medication delivery market in China has grown from RMB3.2 billion in 2018 to RMB6.7 billion in 2025 at a CAGR of 10.9%, and it is expected to increase to RMB11.7 billion in 2030, at CAGR of 12.0% from 2025.

Competitive Landscape of the Medication Delivery System Market in China

The medication delivery system market in China is relatively concentrated. The chart below shows the competitive landscape of China’s medical delivery systems.

Competitive Landscape of Medication Delivery System in China, 2025

Ranking	Company	Company origin	Market share by sales value*
1	Company A	China	21.1%
2	The Company	China	9.9%
3	Company B	Overseas	9.0%
4	Company C	Overseas	7.4%
5	Company D	China	6.7%

Source: CIC

Notes:

- * The medication delivery system calculated includes infusion pumps, syringe pumps, enteral feeding pumps, infusion workstations and central monitoring systems. The sales values are calculated based on ex-factory prices of the medication delivery system products.
- (1) Company A is a public company established in the 1990s and headquartered in Shenzhen, which was listed on the Shenzhen Stock Exchange and primarily engages in life information and support, in vitro diagnostics, and medical imaging.
- (2) Company B is a private company established in the 1830s and headquartered in Germany, which primarily engages in medical devices and pharmaceuticals.
- (3) Company C is established in the 1990s and headquartered in Germany, which primarily engages in infusion, blood delivery and clinical nutrition. The parent group of Company C was listed on the Frankfurt Stock Exchange.
- (4) Company D is a private company established in the 2000s and headquartered in Shenzhen, China, which primarily engages in life support, in vitro diagnostics, medical imaging, and medical information technology.

Anesthesia Machine

Anesthesia machine plays a crucial role in hospital operating rooms. Anesthesia machine facilitates ventilation for surgical patients, delivers them volatile anesthetic agents to maintain the required state of general anesthesia, and continuously monitors both the patient’s condition and the machine’s status to ensure the procedure safety. Modern anesthesia machines integrate anesthetic vaporizers, ventilators, and monitoring equipment with electronic control technologies. The vaporizer is a key component of the anesthesia machine to convert the liquid anesthetic agent into vapor.

INDUSTRY OVERVIEW

Market Size of the Anesthesia Machine Market

The global anesthesia machine market has grown from US\$0.7 billion in 2018 to US\$1.0 billion in 2025, at a CAGR of 6.7%, and it is expected to reach US\$1.3 billion in 2030, at a CAGR of 4.7% from 2025. The anesthesia machine market in China has grown from RMB0.9 billion in 2018 to RMB1.7 billion in 2025 at a CAGR of 8.8%, and it is expected to increase to RMB2.3 billion in 2030, at CAGR of 6.4% from 2025.

The vaporizer, as a key component of the anesthesia machine, is also for sale as a standalone product in the market. The global anesthesia vaporizer market has grown from US\$75.8 million in 2018 to US\$107.3 million in 2025, at a CAGR of 5.1%, and it is expected to further increase to US\$131.7 million in 2030, at a CAGR of 4.2% from 2025. The anesthesia vaporizer market in China has grown from RMB100.5 million in 2018 to RMB188.8 million in 2025, at a CAGR of 9.7%, and it is expected to further increase to RMB302.4 million in 2030, at a CAGR of 9.5% from 2025.

Competitive Landscape of the Anesthesia Machine Market

The market for anesthesia machines has been dominated by foreign brands, with a relatively small market share contributed by domestic manufacturers. The Company is among the few Chinese medical device companies that ranked among top market players in the global anesthesia machine and anesthesia vaporizer market.

Competitive landscape of Global Anesthesia Machine, 2025

Ranking	Company	Company origin	Market share by sales value*
1	Company I	Overseas	21.2%
2	Company J	Overseas	17.7%
3	Company K	Overseas	15.6%
4	Company L	Overseas	10.3%
5	Company A	China	4.8%
6	Company M	Overseas	4.0%
7	The Company	China	2.4%
8	Company N	Overseas	2.0%
9	Company D	China	1.9%
10	Company O	Overseas	1.8%

Source: CIC

Notes:

- * The sales values are calculated based on ex-factory prices of the anesthesia machine products.
- (1) Company I is a public company with a history of over 100 years and headquartered in Chicago, USA, which was listed on the Nasdaq and primarily engages in medical imaging, ultrasound equipment, patient monitoring, and digital healthcare solutions.
 - (2) Company J is a public company established in the 1880s and headquartered in Germany, which was included in the German DAX index and primarily engages in a series of medical equipment and technologies, including anesthesia workstations, ventilators, patient monitoring equipment, thermal insulation equipment, and medical gas management systems.
 - (3) Company K is a public company established in the 1890s and headquartered in Netherlands, which was listed on the New York Stock Exchange and primarily engages in health technologies, encompassing diagnostic imaging, image-guided therapy, patient monitoring, health information technology, home care, and personal health.
 - (4) Company L is a public company established in the 1900s and headquartered in Sweden, which was listed on the Stockholm Stock Exchange and primarily engages in acute care, surgical procedures, and life sciences.

INDUSTRY OVERVIEW

- (5) Company M is a private company established in the 1910 and headquartered in Illinois, USA, which primarily engages in medical device and consumables manufacturing, surgical solutions and infection control, distribution and supply chain services.
- (6) Company N is a private company established in the 1940s and headquartered in the UK, which is part of another public company and primarily engages in the research and development, manufacturing, and sales of medical devices and equipment, including infusion systems and vascular access systems.
- (7) Company O is a private company established in the 1880s and headquartered in Germany, which primarily engages in the research, development, manufacturing, and sales of high-end medical equipment, including anesthesia workstations and respiratory therapy systems.

Others

Airway Management Devices

Airway management devices are essential for securing a patient’s airway and ensuring stable vital signs, among which laryngoscopes serve as a critical tool during intubation procedures. Airway management device is commonly used in anesthesia, first aid, monitoring care, and other scenarios such as chronic obstructive pulmonary disease with respiratory failure. The global market for airway management devices has grown from US\$9.8 billion in 2018 to US\$16.8 billion in 2025, at a CAGR of 8.0%, and it is expected to increase to US\$23.9 billion in 2030, at a CAGR of 7.3% from 2025. The airway management devices market in China has grown from RMB9.8 billion in 2018 to RMB17.1 billion in 2025, at a CAGR of 8.3%, and it is expected to reach a size of RMB23.2 billion in 2030, at a CAGR of 6.3% from 2025.

The video laryngoscope utilizes image transmission technology to provide an indirect view of the larynx, enhancing the intubation process with a magnified field of view and improved visibility due to the blade’s angle. This device facilitates better visualization for endotracheal intubation, requiring less force and thereby minimizing the risk of injury to soft tissues and teeth. The global video laryngoscope market has grown from US\$291.5 million in 2018 to US\$501.0 million in 2025, at a CAGR of 8.0%, and it is expected to further increase to US\$776.8 million in 2030, at a CAGR of 9.2% from 2025. The video laryngoscope market in China increased from RMB301.7 million in 2018 to RMB479.5 million in 2025, at a CAGR of 6.8%, and it is expected to reach RMB754.3 million in 2030, at a CAGR of 9.5% from 2025.

Bronchoscopes

Bronchoscopes, available in rigid, fiber optic, and electronic variants, are designed for use in a range of challenging airway scenarios. They are particularly valuable for tracheal intubation under awake sedation with topical anesthesia which offers a versatile solution for complex airway management. The global bronchoscope market has grown from US\$2.0 billion in 2018 to US\$3.1 billion in 2025, at a CAGR of 6.8%, and it is expected to further increase to US\$4.1 billion in 2030, at a CAGR of 5.7% from 2025. The bronchoscope market in China increased from RMB2.3 billion in 2018 to RMB4.3 billion in 2025, at a CAGR of 9.5%, and it is expected to reach RMB6.6 billion in 2030, at a CAGR of 9.3% from 2025.

Pulmonary Function Testing Device

The pulmonary function testing device is for assessment of lung function by analyzing parameters of the exhaled gas from the subject. The pulmonary function testing equipment includes (i) workstations for hospital and health testing center use, assessing comprehensive pulmonary function; and (ii) portable devices designed for community healthcare settings and home use.

INDUSTRY OVERVIEW

The global pulmonary function device market has grown from US\$559.5 million in 2018 to US\$905.6 million in 2025, at a CAGR of 7.1%, and it is expected to reach US\$1,278.6 million in 2030, at a CAGR of 7.1% from 2025. The pulmonary function device market in China has grown from RMB73.6 million in 2018 to RMB131.6 million in 2025, at a CAGR of 8.7%, and it is expected to reach RMB203.4 million in 2030, at a CAGR of 9.1% from 2025.

VTE Prevention Equipment

VTE includes deep vein thrombosis (“DVT”) and pulmonary thromboembolism (“PTE”). PTE is a disease caused by the abnormal clotting of blood in the deep veins. DVT detachment can lead to pulmonary artery embolism, resulting in impaired gas exchange, thromboembolic pulmonary hypertension, right heart failure, and in severe cases, respiratory distress, shock, or even death. Extensive research data has demonstrated that VTE prevention is a cost-effective intervention that significantly improves patient safety.

The global VTE prevention equipment market has grown from US\$341.6 million in 2018 to US\$460.4 million in 2025, at a CAGR of 4.4%, and it is expected to reach a size of US\$558.9 million in 2030, at a CAGR of 4.0% from 2025. The VTE prevention equipment market in China has grown from RMB128.8 million in 2018 to RMB262.4 million in 2025, at a CAGR of 10.7%, and it is expected to reach RMB393.8 million in 2030, at a CAGR of 8.5% from 2025.

Oxygen Concentrator

Oxygen concentrator is a motor-driven medical device for producing oxygen, with core hardware components including a compressor, molecular sieve, four-way valve, filter, cooling and noise reduction system. Oxygen concentrators generate medical-grade, high-purity oxygen at room temperature, primarily serving (i) patients with neurological, cardiovascular, cerebrovascular, and respiratory diseases, (ii) individuals with high blood pressure, diabetes, and high cholesterol, and (iii) those suffering from obesity-induced oxygen deficiency.

The global oxygen concentrator market has grown from US\$10.0 billion in 2018 to US\$17.5 billion in 2025, at a CAGR of 8.2%, and it is expected to reach US\$22.2 billion in 2030, at a CAGR of 4.9% from 2025. The oxygen concentrator market in China has grown from RMB3.6 billion in 2018 to RMB8.0 billion in 2025, at a CAGR of 12.2%, and it is expected to reach RMB10.7 billion in 2030, at a CAGR of 5.9% from 2025.

Patient Monitor

Patient monitor is a medical device which collects, analyzes and transmits physiological parameters of patients in real-time, such as respiration, pulse, body temperature, blood pressure, heart rate and blood oxygen saturation, these parameters help medical staff to analyze the patient’s current condition and to make correct judgments. Patient monitors are widely used in operating rooms, ICUs, emergency departments, psychiatric wards, CT rooms, pediatric and neonatal care units, general wards and maternity wards.

The global patient monitor market has grown from US\$2.4 billion in 2018 to US\$3.8 billion in 2025, at a CAGR of 6.8%, and it is expected to reach US\$5.3 billion in 2030, at a CAGR of 7.0% from 2025. The patient monitor market in China increased from RMB2.6 billion in 2018 to RMB4.4 billion in 2025, at a CAGR of 8.1%, and it is expected to reach RMB6.9 billion in 2030, at a CAGR of 9.3% from 2025.

Market Challenges and Entry Barriers of Life Support Industry

The key challenges and entry barriers for market participants in the life support industry include the following:

INDUSTRY OVERVIEW

- *Regulatory and product certification.* Life support devices are subject to stringent regulatory oversight. Depending on their risk classification and intended use, new products must undergo comprehensive type testing and technical validations such as reliability and stability assessments, and may also be required to conduct clinical evaluation or clinical trials. The long and costly approval process, together with uncertain regulatory outcomes, presents a substantial barrier for new entrants.
- *R&D and technological barriers.* Life support products may involve an integration of precision mechanics, embedded software, intelligent algorithms, and biocompatible materials. Their development requires sustained R&D investment and strong interdisciplinary capabilities, resulting in a high technological threshold.
- *Capital support and economies of scale.* The life support industry is capital-intensive. Setting up GMP-compliant cleanrooms, production lines, and a reliable global supply chain requires substantial investment. Established players benefit from economies of scale, enabling them to lower unit costs and maintain competitive pricing, making it difficult for new entrants to compete.
- *Brand Reputation and Customer Loyalty.* Hospitals prioritize clinical track records and brand credibility when selecting life support products. Leading brands enjoy long-standing customer trust and institutional relationships. New entrants must invest heavily in clinical validation, and relationship-building.

Growth Drivers and Future Trends of Life Support Market

The future market trends for the life support market include the following:

- *AI-assisted systems and precision mechanics.* Technological advances in AI-assisted systems and precision mechanics are expected to drive growth in the life-support medical device industry. Next-generation infusion monitoring systems increasingly integrate AI to enable real-time data transmission, early detection of abnormalities, and remote diagnostics with improved accuracy and reduced latency. In parallel, AI-enabled infusion pumps can automatically adjust flow rates based on patient conditions, while precision mechanical components ensure reliable micro-level control. These developments are designed to enhance patient safety, reduce human error, and improve clinical efficiency, thereby supporting market adoption and industry growth.
- *Expansion of application scenarios.* Life support products are evolving towards portability, enhancing their use across diverse scenarios. In addition to hospitals, these products are gradually being applied in community healthcare and home healthcare settings. As populations age, the demand for home healthcare devices grows, playing a crucial role in supporting the elderly outside hospitals and easing the strain on healthcare systems.
- *Public hospital expansion focus.* The 2020 “Program for Building Public Health Control and Treatment Capacity” mandates ICU enhancements and the provision of essential life support tools like monitoring systems and ventilators. Currently, China’s per capita ICU bed ratio significantly trails behind developed nations, indicating vast potential for expansion. For instance, while China reported only 12.8 ICU beds per 100,000 people in 2023, the United States boasted 29.4 beds. The concerted effort to bolster ICU capacities directly influences life support product demand.

INDUSTRY OVERVIEW

MINIMALLY INVASIVE INTERVENTION

Minimally invasive interventional surgery is a procedure that utilizes interventional instruments to diagnose and treat patients through vascular or non-vascular channels according to different operating methods, causing minimal trauma and guided by imaging techniques. The non-vascular access is mainly performed through the natural orifice of the human body or into the interior of the human body through tiny incisions. The common medical devices used in these procedures include endoscopes, puncture needles, dilation balloons, guide wires, catheters, stents, and lithotomy baskets.

Endoscopes. Endoscope is a type of minimally invasive interventional inspection instrument composed of image sensor, optical lens, light source and mechanical device. It is used to examine the internal organs visually and diagnose or assist in surgery. Endoscopes have various classification methods: (i) according to the imaging principle of the endoscope, it can be divided into optical endoscopes and electronic endoscopes; (ii) according to the allowable number of uses of endoscope, it can be classified into single-use endoscopes and reusable endoscopes; (iii) according to the rigidity of the endoscope, it is categorized into rigid endoscopes and flexible endoscopes. Furthermore, endoscopes can also be classified according to the detection areas they reach, such as cholangioscopes, duodenoscopes, ureteroscopes and nasopharyngoscopes.

Consumables. Consumables for minimally invasive interventional surgery are tools designed to facilitate various surgical procedures while minimizing the need for large incisions. Consumables are typically single use to ensure sanitation and reduce the risk of infection.

The global market for endoscopic minimally invasive intervention devices, including endoscopes and endoscopic consumables, has increased from US\$22.0 billion in 2018 to US\$34.8 billion in 2025, at a CAGR of 6.8%, and it is expected to further increase to US\$48.8 billion in 2030, at a CAGR of 7.0% from 2025. The market in China has increased from RMB14.9 billion in 2018 to RMB28.3 billion in 2025, at a CAGR of 9.7%, and it is expected to reach RMB52.8 billion in 2030, at a CAGR of 13.3% from 2025. In 2025, the top ten market players accounted for approximately 72.2% of the minimally invasive intervention market in China, in terms of sales value.

Products Targeting Digestive Systems

The human digestive system consists of the GI tract and the accessory organs of digestion, including gallbladder, biliary tract, pancreas and liver. Minimally invasive interventional surgeries commonly address digestive system diseases such as biliary and pancreatic cancers, GI cancers, biliary and pancreatic stone diseases, and intra-abdominal diseases. Commonly performed minimally invasive surgeries include (i) ERCP, a procedure that combines with endoscopy and fluoroscopic imaging to examine the pancreatic and biliary ducts; (ii) ESD, a procedure removes cancerous lesions from the GI tract without necessitating the removal of the affected organ; and (iii) EMR, a procedure for removal of sessile or flat neoplasms confined to the superficial layers (mucosa and submucosa) of the GI tract.

The global market for minimally invasive interventional surgery targeting the digestive system has grown from US\$7.0 billion in 2018 to US\$11.0 billion in 2025, at a CAGR of 6.7%, and it is expected to reach US\$16.4 billion in 2030, at a CAGR of 8.4% from 2025. The market in China increased from RMB5.3 billion in 2018 to RMB10.7 billion in 2025, at a CAGR of 10.6%, and it is expected to increase to RMB19.4 billion in 2030, at a CAGR of 12.6% from 2025.

Specifically, the global market for minimally invasive interventional consumables targeting the digestive system has grown from US\$4.0 billion in 2018 to US\$5.7 billion in 2025, at a CAGR of 5.4%, and it is expected to reach US\$8.6 billion in 2030, at a CAGR of 8.6% from 2025. The market in China increased from RMB1.4 billion in 2018 to RMB2.8 billion in 2025, at a CAGR of 10.2%, and it is expected to increase to RMB5.1 billion in 2030, at a CAGR of 12.3% from 2025.

INDUSTRY OVERVIEW

Competitive Landscape of Digestive System Minimally Invasive Interventional Consumables in China, 2025

Ranking	Company	Company origin	Market share by sales value*
1	Company V	China	38.5%
2	Company W	Overseas	22.9%
3	The Company	China	21.5%
4	Company X	China	8.0%
5	Company Y	Overseas	3.5%

Source: CIC

Notes:

- * The sales values are calculated based on ex-factory prices of the minimally invasive interventional consumables targeting the digestive system.
- (1) Company V is a public company established in the 2000s and headquartered in Nanjing, which was listed on the Science and Technology Innovation Board of the Shanghai Stock Exchange, and primarily engages in the research, development, manufacturing, and sales of minimally invasive medical devices.
 - (2) Company W is a public company established in the 1970s and headquartered in Massachusetts, USA, which was listed on the New York Stock Exchange and primarily engages in the research, development, production, and sales of medical devices, including interventional cardiology and oncology products. Its increased market share in 2025 primarily resulted from an acquisition completed during the year.
 - (3) Company X is a public company established in the 2010s and headquartered in Hangzhou, which was listed on the Shanghai Stock Exchange’s Science and Technology Innovation Board and primarily engages in medical manufacturing of minimally invasive endoscopic diagnostic and therapeutic devices.
 - (4) Company Y is a public company established in the 1910s and headquartered in Tokyo, Japan, which was listed on the Tokyo Stock Exchange Prime Market and primarily engages in endoscopy systems and full-spectrum medical solutions.

INDUSTRY OVERVIEW

Products Targeting Urological System

The urinary system, also known as the urinary tract or renal system, consists of the kidneys, ureters, bladder, and the urethra. Minimally invasive interventional surgeries commonly address digestive system and urinary system diseases, including, among others, urology system stones, kidney cancer, urinary cancer, prostate cancer, testis cancer, benign prostatic hyperplasia, varicocele and urinary tract obstruction.

The global market for minimally invasive intervention devices targeting urological system has grown from US\$4.8 billion in 2018 to US\$7.2 billion in 2025, at a CAGR of 5.9%, and it is expected to reach US\$9.8 billion in 2030, at a CAGR of 6.3% from 2025. The China market for minimally invasive intervention devices targeting urological system has grown from RMB2.2 billion in 2018 to RMB4.8 billion in 2025 at a CAGR of 11.7%, and it is expected to increase to RMB7.6 billion in 2030, at CAGR of 9.9% from 2025.

In particular, the global single-use ureteroscope market has grown from US\$62.7 million in 2018 to US\$360.5 million in 2025, at a CAGR of 28.4%, and it is expected to reach US\$777.8 million in 2030, at a CAGR of 16.6% from 2025. The market in China has grown from RMB45.8 million in 2020 to RMB571.7 million in 2025 at CAGR of 65.7% and it is expected to reach RMB1,291.5 million in 2030, representing a CAGR of 17.7% from 2025.

Market Challenges and Entry Barriers of Minimally Invasive Intervention Industry

The key challenges and entry barriers for market participants in the minimally invasive intervention industry include the following:

- *Regulatory and clinical procedures.* Minimally invasive interventional products are typically classified as Class II or III medical devices and require extensive type testing and clinical validation, and even clinical trials before market approval. The approval process is long and costly, posing high entry thresholds in terms of time and capital.
- *Capital and manufacturing capabilities.* Production of minimally invasive intervention products requires cleanroom facilities, precision equipment, and mature process control. Achieving compliant, stable, and cost-effective mass production demands significant investment and scale, which are often difficult for new entrants to attain.
- *Sales and clinical support.* Commercialization of minimally invasive intervention products relies on professional sales teams that can provide clinical support such as surgical assistance and training. Building such networks and hospital relationships requires years of investment and experience, and it is difficult for new entrants to penetrate the market quickly.
- *Intellectual property protection.* Leading companies hold strong patent portfolios covering key materials and device designs. New entrants face challenges avoiding infringement and developing differentiated products.

Growth Drivers and Future Trends of Minimally Invasive Intervention Market

Driven by an increase in growing population and chronic disease prevalence, an increase in the early diagnosis of digestive cancers and supporting policies, the future market trends for the minimally invasive intervention market include the following:

- *Increasing penetration of single-use endoscopes and consumables:* The demand for single-use endoscopes and consumables is rising, driven by their lower infection risks and increasing adoption in both tertiary and secondary hospitals. Technological advancements in image processing and sensor technologies are enhancing the image quality of single-use endoscopes.

INDUSTRY OVERVIEW

- *Product innovation and application scenario expansion.* AI-assisted systems that can efficiently and accurately extract image information will gradually be integrated into the endoscopes and will work with other innovative technologies, such as 3D imaging, enhancing diagnostic accuracy and procedural efficiency.
- *Domestic substitution to imported products.* High-value consumables remain largely dominated by multinational companies. However, with persistent investment in innovation by domestic manufacturers and supportive government policies, domestic non-vascular consumables are expected to increasingly replace international counterparts.

IN VITRO DIAGNOSTICS

In vitro diagnostics tests involve analyzing samples taken from the human body, such as blood, tissue, or urine, to detect diseases, conditions, and infections. The primary components of in vitro diagnostics testing are instruments, reagents, and consumables, which collectively facilitate the examination of biological samples for disease diagnosis, treatment guidance and health monitoring. According to the testing principles or testing methods, the in vitro diagnostics testing can generally be divided into following categories:

- *Blood Diagnosis.* Blood diagnostics analyzes blood components and indicators to assess health conditions and support disease diagnosis. Blood grouping and coagulation are two types of commonly performed blood tests.
- *Immunoassays.* Immunoassays utilize immune responses between antigens and antibodies to test infectious diseases and cancers. Common detection techniques include enzyme-linked immunosorbent assay, collaurum and CLIA. Immunoassays now represent the largest market segment within the in vitro diagnostics industry and continue to experience rapid growth.
- *Molecular Diagnostics.* Molecular diagnostics involves taking DNA or RNA, the unique genetic code found in our cells, and analyzing the sequences for red flags that can pinpoint the potential emergence of a specific disease. Key technologies involved include polymerase chain reaction (“PCR”) and next-generation sequencing. Molecular diagnostics are mainly used to detect cancers, genetic diseases, and infectious diseases.
- *Biochemical Diagnosis.* Biochemical diagnosis primarily utilizes biochemical reactions to analyze various substances within the body, including enzymes, sugars, lipids, proteins, non-protein nitrogenous substances, and inorganic ions. It is mainly used to assess liver function, kidney function, and other vital indicators.
- *Microbiological Diagnosis.* Microbiological diagnosis involves using methods such as drug sensitivity tests, microorganism culture, morphological observation, and biochemical reactions to identify and analyze bacterial or fungal infections.
- *Morphological Detection.* Morphological detection observes the morphological features of objects under a microscope to identify and analyze various specimens, such as blood cells, body fluids, and feces.

In vitro diagnostics testing is categorized into two main types — laboratory-based diagnostics and POCT. Traditional laboratory testing encompasses a multi-step process that includes patient sample collection, transportation to a centralized laboratory, and subsequent processing steps. POCT is conducted near the site of patient care and uses portable, handheld devices to perform rapid tests directly on samples.

INDUSTRY OVERVIEW

The global in vitro diagnostics market grew from US\$66.8 billion in 2018 to US\$118.1 billion in 2025, at a CAGR of 8.5%, and it is expected to further increase to US\$171.4 billion in 2030, at a CAGR of 7.7% from 2025. The in vitro diagnostics market in China increased from RMB74.4 billion in 2018 to RMB122.5 billion in 2025, at a CAGR of 7.4%, and it is expected to further increase to RMB191.2 billion in 2030, at a CAGR of 9.3% from 2025. In 2025, the top ten market players accounted for approximately 71.1% of the in vitro diagnostics market in China, in terms of sales value.

Coagulation

Blood coagulation is the physiological process that leads to hemostasis, transforming blood from a liquid to a non-flowing gel state. Coagulation testing measures a patient’s blood clotting ability through conventional indicators including plasma prothrombin time (“PT”), activated partial thromboplastin time (“APTT”), thrombin time (“TT”) and fibrinogen (“FIB”) levels. Furthermore, thromboelastography (“TEG”) as an emerging test, is gaining importance in this testing area. TEG assesses whole blood samples and offers a comprehensive approach to evaluating blood coagulation efficiency including platelet function, clot strength, fibrinolysis, dissolution state, clot solidity and elasticity. For patients with acute and critical conditions, such as myocardial infarction, stroke, as well as those undergoing procedures like stent placement or thrombolytic therapy, coagulation testing serves as a vital clinical indicator. It helps in assessing the progression of the patient’s condition and in deciding the subsequent course of treatment. TEG is recommended for clotting function detection and transfusion management, perioperative management and guiding the antiplatelet therapy.

The global coagulation device market has grown from US\$1,528.1 million in 2018 to US\$3,548.5 million in 2025, at a CAGR of 12.8%, and it is expected to reach US\$6,088.4 million in 2030, at a CAGR of 11.4% from 2025. The coagulation device market in China has grown from RMB3.7 billion in 2018 to RMB8.8 billion in 2025 at a CAGR of 13.3%, and it is expected to increase to RMB15.3 billion in 2030, at CAGR of 11.7% from 2025.

Market for TEG Devices in China

TEG device market in China has rapidly grown from RMB297.6 million in 2018 to RMB1,142.3 million in 2025, at a CAGR of 21.2%, and it is expected to further increase to RMB2,517.1 million in 2030, at a CAGR of 17.1% from 2025. TEG devices can be categorized into fully automated mode and semi-automated mode. The semi-automated mode, being introduced earlier, currently dominates the market. However, as fully automated devices are progressively promoted, their market share is expected to gradually increase.

Blood Grouping

Blood grouping classifies blood based on the presence of specific antigens and antibodies. The primary systems are the ABO and Rh blood groups. The ABO system categorizes blood into four types: A, B, AB, and O. The Rh system, specifically RhD antigen, classifies blood as either RhD positive or RhD negative based on the presence or absence of this specific antigen. These classifications are crucial for determining compatibility in blood transfusions, collecting donor blood, diagnosing neonatal hemolytic diseases, and conducting pre-transplant tests. Additionally, blood grouping is employed in paternity testing, forensic identification, and the investigation of certain diseases, making it an essential tool in both medical and legal fields. Currently, the main testing methods for blood grouping include the microcolumn gel method and hemagglutination test.

INDUSTRY OVERVIEW

Market for Blood Grouping Devices in China

The blood grouping market in China increased from RMB885.3 million in 2018 to RMB1,874.2 million in 2025, at a CAGR of 11.3%, and it is expected to further increase to RMB3,082.3 million in 2030, at a CAGR of 10.5% from 2025. Due to its testing characteristics and high consumption of disposables, the blood grouping market is primarily driven by sales of reagents and test kits, accounting for about 80% of the total market, with the remainder attributed to equipment sales.

Competitive Landscape of Blood Grouping Device Market in China

In 2025, the top ten players of blood grouping devices collectively occupied approximately 75% of the market share in China in terms of sales value. Among the top five market players, there are four domestic companies including Changchun Boxun, Aikang Bio, Libo Med and the Company. The overseas market player is ORTHO.

Competitive Landscape of Blood Grouping Device Market in China, 2025

Ranking	Company	Company origin	Market share by sales value*
1	Company FF	China	28.5%
2	Company GG	Overseas	19.2%
3	Company HH	China	14.3%
4	Company II	China	9.9%
5	The Company	China	3.9%

Source: CIC

Notes:

- * The sales values are calculated based on ex-factory prices of the blood grouping devices.
- (1) Company FF is a private company established in the 2000s and headquartered in Jilin, which primarily engaged in the research, development, production, and sales of in vitro diagnostic reagents, including microcolumn gel immunoassay technology, monoclonal antibodies, and molecular detection technology.
 - (2) Company GG is a public company established in the 1930s and headquartered in New Jersey, USA, which was listed on the Nasdaq and primarily engages in in vitro diagnostics of laboratory testing and blood grouping solutions.
 - (3) Company HH is a private company established in the 2000s and headquartered in Guangdong, which primarily engages in enzyme-linked immunosorbent assay, blood grouping, chemiluminescence immunoassay and point-of-care testing.
 - (4) Company II is a private company established in the 2000s and headquartered in Jiangsu, which primarily engages in blood cell serological grouping, molecular biological testing, and oncology testing solutions.

Chemiluminescence

CLIA has become a crucial routine immunoassay technique in clinical laboratories, spanning various fields including cancer, cardiovascular diseases, infectious diseases, and endocrinology. It encompasses virtually all immunodiagnostic tests. Based on the chemiluminescence method employed, it can be further categorized into direct chemiluminescence, enzyme chemiluminescence, electrochemiluminescence, and luminescent oxygen channel immunoassays. The chemiluminescence market in China has seen rapid growth from RMB19.2 billion in 2018 to RMB41.1 billion in 2025, at a CAGR of 11.5% and it is expected to further increase to RMB58.2 billion in 2030, at a CAGR of 7.2% from 2025.

INDUSTRY OVERVIEW

Chemiluminescence POCT, by developing fully automated detection equipment of smaller size, has enabled rapid and timely detection. It offers advantages over traditional detection methods regarding testing volume, variety of sample types, reagent usability, and ease of operation. It streamlines the testing process and saves time consumed in sample transportation, pre-processing, organization, labeling and distribution. The chemiluminescence POCT market in China has grown from RMB3.9 billion in 2018 to RMB11.8 billion in 2025, at a CAGR of 17.3%, and it is expected to reach RMB22.5 billion in 2030, at a CAGR of 13.7% from 2025.

Molecular Diagnostics

PCR is widely used as a standalone molecular diagnostic technique for amplifying DNA sequences. PCR serves as a key tool for detecting genetic material and is also an essential step in next-generation sequencing. PCR diagnostics can generally be categorized by three types: (i) Qualitative PCR technology, which employs agarose gel electrophoresis for analysis, is primarily utilized in scientific research. This method focuses on detecting the presence or absence of a target sequence. (ii) Quantitative PCR technology, also known as real-time quantitative PCR (“qPCR”), offering rapid results, high precision, and the ability to quantify the amount of target nucleic acid in a sample. (iii) Digital PCR (“dPCR”), which enable absolute quantification of nucleic acids without the need for standard curves, offer enhanced sensitivity, precision, and reproducibility, particularly useful for detecting low-abundance targets, precise gene expression analysis, and variations in genetic sequences. The PCR market in China has grown from RMB4.5 billion in 2018 to RMB13.3 billion in 2025, at a CAGR of 16.7%, and it is expected to reach RMB21.8 billion in 2030, at a CAGR of 10.4% from 2025.

Market Challenges and Entry Barriers of In Vitro Diagnostics Industry

The key challenges and entry barriers for market participants in the in vitro diagnostics industry include the following:

- *Product registration and quality control requirements.* As regulated medical products, in vitro diagnostic reagents and instruments are subject to mandatory registration or filing with the NMPA. In addition, companies must establish and maintain a robust quality management system in accordance with the Good Manufacturing Practices for Medical Devices. These requirements result in lengthy registration cycles and substantial capital investment, forming an administrative and compliance barrier to market entry.
- *Capital-intensive “Reagent + Instrument” business model.* The in vitro diagnostics industry commonly adopts a bundled business model that combines the sale of diagnostic instruments with the ongoing sale of proprietary reagents. To secure long-term customer retention, companies must bear the upfront costs of instrument R&D, manufacturing, or depreciation from equipment placement. New entrants without sufficient financial strength or a sustainable pipeline of proprietary reagents often find it difficult to operate under this model.
- *Sales channel establishment and specialized service requirements.* Effective distribution of in vitro diagnostics products relies on extensive sales networks that cover hospitals, third-party laboratories, and primary healthcare institutions. In parallel, dedicated sales and technical support teams with professional clinical laboratory knowledge are needed to deliver timely services such as instrument installation, user training, maintenance, and troubleshooting.

INDUSTRY OVERVIEW

Growth Drivers and Trends of In Vitro Diagnostics Industry

Driven by an increase in chronic disease prevalence, recommendations from authoritative medical guidelines and consensus, expanded in vitro diagnostics application scenarios, and broader insurance coverage, the in vitro diagnostics market is expected to further develop. Future trends are anticipated to include the following:

- *Domestic substitution to imported in vitro diagnostics products.* Historically, the in vitro diagnostics market has been dominated by multinational medical device companies. However, as domestic brands continue to evolve and benefit from technological advancements and favorable policy support, these brands are not only gaining market share but are also expected to further increase their presence and expand into upstream markets.
- *Easier access to in vitro diagnostics with supportive regulation and policy.* As the in vitro diagnostics industry advances, regulatory bodies around the world are refining their frameworks to ensure patient safety while encouraging innovation. This has led to an increasing standardization of regulatory requirements across different regions, simplifying the approval process for new in vitro diagnostics products. Such standardization accelerates the global rollout of new diagnostic technologies and supports innovation by easing market access for novel developments.
- *More consumer-friendly testing process.* The deepening patient education is fostering a demand for direct-to-consumer diagnostic tests and wellness assessments. This trend is prompting in vitro diagnostics companies to design more user-friendly testing kits and digital health tools.
- *The expansion of in vitro diagnostics applications in primary healthcare settings.* The expansion of primary-level maternal and child health centers, particularly in underserved areas, is improving access to healthcare services for expectant mothers and infants. As more of these primary healthcare facilities are established or upgraded to deliver comprehensive care, the demand for diagnostic equipment and consumables will grow. This demand extends to tools for biochemical analysis, molecular diagnostics, and imaging techniques — key components of in vitro diagnostics essential for effective healthcare delivery in these settings.

PRICE TREND OF RAW MATERIALS

Various raw materials are used for the production of equipment and consumable medical devices, such as 0.49mm steel wire, motors, lithium-ion batteries, dextran gel, and pressure sensors.

The price of 0.49mm steel wire ranges from RMB5,000 to RMB6,500 per ton, depending on factors such as the type of steel used (e.g., high-carbon steel or stainless steel) and the surface treatment applied (e.g., galvanization or polishing). Key drivers of pricing include the prices of industrial metals such as iron, energy inputs such as electricity and coal, environmental regulations, downstream demand, and international trade policies.

The prices of motors vary depending on the motor type and power rating. For instance, alternating current motors and direct current motors with power ratings below 10kW are typically priced between a few hundreds to thousands RMB per unit. Driven by the growing demand for intelligent manufacturing, the prices of high-end servo motors have experienced more significant increases. Key pricing factors include fluctuations in the prices of upstream raw materials such as copper, aluminum and rare earth metals, energy efficiency requirements, product brands, and governmental subsidies.

INDUSTRY OVERVIEW

The price of lithium-ion batteries varies depending on their type, capacity, and application, and generally ranges from several hundred RMB per kWh. In recent years, prices of lithium-ion batteries have shown a downward trend due to industry overcapacity and continued technological advancement. Key price determinants include the prices of upstream raw materials such as lithium carbonate, lithium hydroxide, nickel, and cobalt.

The price of dextran gel typically ranges from several hundred to several thousand RMB per 100 grams, depending on product performance. Industrial-grade dextran gel is generally more affordable than laboratory-grade variants, and imported brands are priced higher than domestic brands in China. With the ongoing trend of domestic substitution in China, prices are expected to decline further. Key pricing factors include the cost of dextran and cross-linking agents, the preparation process, brand positioning, and procurement volume.

The price of pressure sensors varies based on measurement accuracy and range. While prices have generally declined in recent years driven by the adoption of MEMS technology and domestic substitution in China, high-precision sensors remain relatively expensive. Pricing is also affected by factors such as material compatibility with the measured medium, output signal specifications, brand premium, and overall purchase volume.

SOURCE OF INFORMATION

This section contains information extracted from the CIC Report prepared by China Insights Consultancy independently, which is commissioned by us in connection with the [REDACTED]. We expect to pay China Insights Consultancy a total of RMB1.4 million for the CIC Report and our use of the report. China Insights Consultancy is a consulting company which provides industry consulting services, commercial due diligence and strategic consulting services for a variety of industries. We selected the specific product markets disclosed in the “Industry Overview” section based on the revenue contribution of the relevant products to the Company’s overall business. We are of the view that the payment of such fee does not impair the fairness of the conclusions drawn in the CIC Report. We have extracted certain information from the CIC Report in this section, as well as in the sections headed “Summary,” “Risk Factors,” “Business,” “Financial Information” and elsewhere in this document to provide our potential investors with a more comprehensive presentation of the industry in which we operate.

During the preparation of the CIC Report, China Insights Consultancy performed both primary and secondary research, and obtained knowledge, statistics, information on and industry insights into the medical device market in China and globally. Primary research involved interviewing key industry experts and leading industry participants. Secondary research involved analyzing data from various publicly available data sources. The exchange rates used in the CIC Report are set out as following: The translations between Renminbi and U.S. dollar are made at the rate of RMB7.1 to US\$1.0. The CIC Report was compiled based on the following assumptions: (i) the overall social, economic and political environment globally and in China is expected to remain stable during the forecast period; (ii) Global and China’s economic and industrial development is likely to maintain a steady growth trend over the next decade; (iii) related key industry drivers are likely to continue driving the growth of the medical device market, in particular the markets for life support, minimally invasive intervention and in vitro diagnostics; and (iv) there is no extreme force majeure or industry regulation in which the market may be affected dramatically or fundamentally. Our Directors have confirmed, after making reasonable inquiries and exercising reasonable care, that there is no adverse change in the market information since the date of the CIC Report which may qualify, contradict or impact the information disclosed in this section.