

# **North America Minimally Invasive Surgical Devices Market Segmented By Type (Handheld Instruments, Surgical Scopes, Cutting Instruments, Guiding Devices, Electrosurgical Devices, Others), By Surgery Type (Cardiovascular, Gastrointestinal, Gynecology, Urology, Others), By End-User (Hospitals & Clinics, Ambulatory Surgical Centers, Others), By Country, Competition, Forecast, Opportunities, 2018-2028F**

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## **Abstracts**

North America Minimally Invasive Surgical Devices Market has valued at USD 8.35 billion in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 6.01% through 2028. The North America Minimally Invasive Surgical Devices Market is a dynamic and rapidly evolving sector within the broader healthcare industry. It encompasses a wide range of medical devices and technologies designed to facilitate surgical procedures with minimal invasiveness.

The North America Minimally Invasive Surgical Devices Market is one of the largest and most mature markets globally. It comprises the United States and Canada, two countries known for their advanced healthcare infrastructure and technology adoption. The market has experienced consistent growth over the years, driven by factors such as technological advancements, increasing demand for less invasive procedures, and a growing aging population. The market's size and growth are influenced by the prevalence of various medical conditions that require surgical interventions, as well as the adoption of minimally invasive techniques across a wide spectrum of medical specialties.

## Key Market Drivers

### Advancements in Technology and Innovation

Advancements in technology and innovation play a pivotal role in driving the growth of the North America Minimally Invasive Surgical Devices Market. These advancements have revolutionized the field of healthcare by enabling healthcare providers to perform surgeries with greater precision, reduced invasiveness, and improved patient outcomes. The most transformative innovation in minimally invasive surgery is the development of robotic-assisted surgical systems, such as the da Vinci Surgical System. These systems use advanced robotics and real-time imaging to provide surgeons with enhanced control and precision during procedures. Robotic-assisted surgery allows for smaller incisions, reduced blood loss, and shorter recovery times. Surgeons can perform complex surgeries with greater accuracy, even in hard-to-reach areas of the body. This technology has been widely adopted in various surgical specialties, including urology, gynecology, and general surgery.

The integration of three-dimensional (3D) imaging and visualization technologies has significantly improved the surgeon's ability to visualize and navigate inside the patient's body. High-definition 3D imaging provides a more detailed and immersive view during minimally invasive procedures. Surgeons can assess anatomy with greater precision, identify abnormalities, and make more informed decisions during surgery. This has led to improved surgical outcomes and a reduction in complications. Advances in materials science and engineering have enabled the development of smaller, more precise surgical instruments. These miniaturized tools can be used through tiny incisions or ports in minimally invasive procedures. Miniaturization allows for greater dexterity and control, facilitating delicate and intricate surgical tasks. Surgeons can manipulate tissues and organs with greater precision, reducing the risk of damage and improving patient safety.

The integration of telemedicine and remote surgery capabilities has expanded the reach of minimally invasive surgical procedures. Surgeons can now perform surgeries on patients who are located remotely, potentially even in different cities or countries. This innovation has been particularly valuable in situations where specialized expertise is required but not readily available locally. Telemedicine and remote surgery have the potential to democratize access to high-quality surgical care.

### Increasing Prevalence of Chronic Diseases

The increasing prevalence of chronic diseases is a significant market driver that fuels the growth of the North America Minimally Invasive Surgical Devices Market. Chronic diseases are characterized by long-lasting and persistent health conditions that often require medical intervention, including surgical procedures. Cardiovascular diseases, such as coronary artery disease, heart failure, and arrhythmias, are among the leading causes of morbidity and mortality in North America. These conditions often necessitate surgical interventions to restore blood flow or repair cardiac structures. Minimally invasive approaches, such as angioplasty and stent placement, have become standard procedures for treating cardiovascular diseases. These methods involve smaller incisions, reduced trauma to the patient, and shorter recovery times, driving their adoption.

The prevalence of obesity has reached epidemic proportions in North America, leading to various health issues like type 2 diabetes, hypertension, and joint problems. Bariatric surgeries, such as gastric bypass and sleeve gastrectomy, are commonly performed to help patients manage obesity and its associated comorbidities. Minimally invasive techniques in bariatric surgery, such as laparoscopic procedures, have gained popularity due to their reduced post-operative pain and quicker return to normal activities. As obesity rates continue to rise, the demand for these surgeries and associated devices grows.

Chronic gastrointestinal conditions, including Crohn's disease, ulcerative colitis, and diverticulitis, often require surgical interventions to alleviate symptoms or address complications. Minimally invasive techniques, such as laparoscopy, have become the preferred choice for many of these procedures. Minimally invasive surgeries in the gastrointestinal field offer benefits like smaller incisions, reduced risk of infection, and shorter hospital stays, which appeal to both patients and healthcare providers. As the aging population in North America increases, so does the prevalence of orthopedic conditions like osteoarthritis and degenerative disc disease. These conditions often lead to joint pain and the need for joint replacement surgeries. Minimally invasive techniques in orthopedic surgery, such as arthroscopy and minimally invasive spine surgery, have gained traction due to their ability to preserve healthy tissue, reduce scarring, and accelerate recovery.

### Aging Population

The aging population is a significant market driver that contributes to the growth of the North America Minimally Invasive Surgical Devices Market. As the demographic composition of North America shifts towards an older population, there is an increased

demand for healthcare services, including surgical procedures. As individuals age, they are more likely to develop chronic health conditions, degenerative diseases, and age-related ailments. Many of these conditions require surgical intervention for diagnosis, treatment, or symptom management. Older adults often prefer minimally invasive surgical procedures because they offer several advantages, including reduced trauma to the body, shorter hospital stays, and faster recovery times. The demand for these less invasive techniques is therefore higher among the aging population.

Aging is often associated with joint-related issues such as osteoarthritis and joint degeneration. Joint replacement surgeries, such as hip and knee replacements, are common among older adults to restore mobility and alleviate pain. Minimally invasive techniques in orthopedic surgery, such as minimally invasive hip and knee replacements, have gained popularity among older patients due to their less invasive nature and quicker rehabilitation.

Cardiovascular diseases, including coronary artery disease and heart valve disorders, become more prevalent with age. These conditions may necessitate surgical interventions, such as angioplasty or valve replacement. Minimally invasive approaches in cardiovascular surgery, such as percutaneous coronary interventions and transcatheter aortic valve replacements (TAVR), are preferred among older patients due to reduced risks associated with open heart surgery. The risk of cancer increases with age, and older adults often require surgical procedures for cancer diagnosis and treatment. Minimally invasive approaches, such as laparoscopy and robotic-assisted surgery, have become standard in oncology. Minimally invasive techniques are particularly valuable for older patients, as they reduce the physical stress associated with surgery, making it a more viable option for those with age-related frailty. Minimally invasive surgical devices are well-suited for the elderly population as they minimize trauma, reduce recovery times, and lower the risk of complications. As the aging population continues to grow, the demand for these devices is expected to increase.

### Healthcare Cost Containment

Healthcare cost containment is a crucial market driver that significantly influences the growth of the North America Minimally Invasive Surgical Devices Market. As healthcare costs continue to rise, healthcare providers, payers, and institutions seek cost-effective solutions, and minimally invasive surgical techniques align with this objective. Minimally invasive surgical procedures typically require shorter hospital stays compared to traditional open surgeries. Patients can often be discharged sooner, leading to lower hospitalization costs.

Hospitals and healthcare institutions are incentivized to adopt minimally invasive techniques to reduce the financial burden associated with longer hospitalizations, including costs related to patient care, bed occupancy, and facility resources. Minimally invasive surgeries often result in faster recoveries, which, in turn, reduce the need for extended post-operative care. Patients may require fewer outpatient visits and home healthcare services. Healthcare cost containment strategies emphasize the importance of minimizing ongoing healthcare expenses. Minimally invasive surgeries contribute to this goal by decreasing the overall cost of patient care.

Minimally invasive techniques are associated with lower rates of surgical complications, such as infections, bleeding, and wound-related issues. Fewer complications lead to decreased healthcare expenditures related to the treatment of these complications. Healthcare providers are motivated to adopt minimally invasive surgical devices to improve patient outcomes and avoid the financial consequences of managing post-operative complications. Patients who undergo minimally invasive procedures often experience a faster return to their daily activities and work, reducing the economic burden of lost productivity. Healthcare cost containment efforts take into account the indirect costs associated with a patient's ability to return to work and maintain their quality of life. Minimally invasive surgeries facilitate this goal by promoting quicker recoveries.

## Key Market Challenges

### Regulatory Compliance and Approval Processes

Stringent regulatory requirements and approval processes can slow down the introduction of new minimally invasive surgical devices to the market. In the United States, for instance, the Food and Drug Administration (FDA) requires rigorous testing and clinical trials to ensure the safety and efficacy of medical devices.

Companies must invest significant time and resources in navigating the regulatory pathway, which includes pre-market approvals, 510(k) clearances, and adherence to Good Manufacturing Practices (GMP). Delays in regulatory approvals can hinder the timely launch of innovative devices and technologies, impacting market growth.

### Cost Barriers and Reimbursement Challenges

The high cost associated with acquiring and implementing minimally invasive surgical

devices can pose a barrier to their widespread adoption. Purchasing and maintaining advanced surgical equipment, such as robotic-assisted systems, can strain the budgets of healthcare institutions.

Additionally, reimbursement policies and rates for minimally invasive procedures may not always align with the costs incurred by healthcare providers. This can discourage facilities from investing in these technologies, slowing down market growth.

### Training and Skill Acquisition

Minimally invasive surgeries require specialized training and skills that differ from traditional open procedures. Surgeons and healthcare staff need to undergo training and certification to proficiently operate these devices.

The learning curve associated with minimally invasive techniques can be steep, and healthcare facilities may face challenges in adequately training their staff. Moreover, recruiting skilled professionals in minimally invasive surgery can be competitive, which can limit the adoption of these techniques and devices.

### Key Market Trends

#### Robotic-Assisted Surgery Adoptio

Robotic-assisted surgical systems, such as the da Vinci Surgical System, are gaining widespread acceptance in North America. These systems offer enhanced precision and dexterity to surgeons, making them particularly suitable for complex procedures.

Surgeons can perform minimally invasive surgeries with greater control, accuracy, and smaller incisions, resulting in reduced trauma to patients. This trend is driving the adoption of robotic-assisted devices in various surgical specialties, including urology, gynecology, and general surgery. The market is witnessing the development of next-generation robotic platforms with advanced capabilities, including augmented reality and artificial intelligence integration, which further expand their applications.

#### Telemedicine and Remote Surgery

Telemedicine and remote surgery have become increasingly prevalent in North America, driven by the need to expand healthcare access and improve patient outcomes, especially in rural or underserved areas.



Surgeons can perform procedures remotely using robotic surgical systems and real-time video communication. This trend enables patients to receive specialized care regardless of their geographic location. As technology advances and regulatory frameworks evolve to accommodate remote surgical practices, telemedicine and remote surgery are likely to continue growing, contributing to the adoption of minimally invasive devices.

### Patient-Centric Care and Personalized Medicine

The healthcare industry is shifting towards patient-centric care, with a growing emphasis on personalized medicine. Minimally invasive surgical devices are playing a crucial role in tailoring treatments to individual patient needs.

Advanced imaging techniques, such as 3D imaging and augmented reality, allow surgeons to visualize patient anatomy in greater detail, leading to more precise and personalized procedures. The development of patient-specific implants and surgical plans using 3D printing technology is another emerging trend. This approach ensures a better fit and optimized outcome, particularly in orthopedic and reconstructive surgeries.

### Segmental Insights

#### Type Insights

Based on the category of Type, the handheld instruments segment emerged as the dominant player in the North America market for Minimally Invasive Surgical Devices in 2022. Handheld instruments encompass a wide range of tools used in minimally invasive surgeries, such as laparoscopic, endoscopic, and robotic-assisted procedures. These instruments are versatile and can be employed across various surgical specialties, including general surgery, gynecology, urology, and orthopedics. Surgeons rely on handheld instruments like graspers, scissors, dissectors, and needle holders to perform precise and delicate tasks during minimally invasive surgeries. The broad spectrum of applications across different procedures contributes to the dominance of this segment.

Handheld instruments have been instrumental in traditional laparoscopic surgeries, which have a long history of successful implementation in North America. Surgeons are well-trained in using these instruments for minimally invasive abdominal and pelvic procedures. Laparoscopic procedures are routinely performed for various conditions,

such as appendectomies, cholecystectomies (gallbladder removal), and hernia repairs. Handheld instruments are essential tools in these surgeries, contributing to their widespread adoption.

The handheld instruments category has not remained stagnant but has seen continuous innovation and technological advancements. Manufacturers have developed instruments with improved ergonomics, durability, and precision. Advancements in materials, such as the use of advanced alloys and coatings, have enhanced the performance of handheld instruments. Additionally, ergonomic handle designs and better instrument control have improved surgeon comfort and precision during procedures. These factors are expected to drive the growth of this segment.

### Surgery Type Insight

Based on the category of Surgery Type, the gastrointestinal surgery segment emerged as the dominant player in the North America market for Minimally Invasive Surgical Devices in 2022. Gastrointestinal (GI) conditions are highly prevalent in North America, with a substantial portion of the population experiencing issues such as acid reflux, gastritis, gallstones, and colorectal disorders. Many of these conditions require surgical intervention, and minimally invasive approaches have become the preferred choice due to their associated benefits, including reduced pain, shorter hospital stays, and quicker recovery times.

The gastrointestinal surgery category encompasses a wide range of procedures, from relatively common interventions like laparoscopic cholecystectomy (gallbladder removal) and appendectomy to more complex surgeries such as colorectal resections. Minimally invasive techniques have been successfully applied to these procedures, making them suitable for a broad patient population. Advances in laparoscopic and endoscopic technologies have significantly enhanced the feasibility and safety of minimally invasive GI surgeries. Surgeons can access and visualize the GI tract with high-definition cameras and advanced instruments. Techniques like laparoscopic colorectal surgery, endoscopic mucosal resection (EMR) for early-stage GI cancers, and NOTES (natural orifice transluminal endoscopic surgery) have expanded the scope of minimally invasive options in the GI field. These factors are expected to drive the growth of this segment.

### End-User Insights

The hospital & clinics segment is projected to experience rapid growth during the



forecast period. Hospitals and clinics are the primary centers for surgical care in North America. They serve as hubs for a wide range of medical specialties, including surgery.

Most surgical procedures, both minimally invasive and traditional, are performed within hospital settings. These facilities house operating rooms, recovery areas, and the necessary support services for surgical interventions. Hospitals and clinics typically have access to advanced infrastructure and state-of-the-art surgical technology. This includes specialized operating rooms equipped with advanced imaging, robotic surgical systems, and other cutting-edge surgical devices. The availability of such technology facilitates the adoption of minimally invasive techniques, as surgeons in hospital settings are well-equipped to utilize these devices effectively.

Hospitals employ multidisciplinary surgical teams comprising surgeons, anesthesiologists, nurses, and support staff with expertise in various surgical specialties. This collaborative approach ensures that minimally invasive surgeries can be performed by highly skilled professionals who are trained to use the latest surgical devices effectively. These factors collectively contribute to the growth of this segment.

## Regional Insights

United States emerged as the dominant player in the North America Minimally Invasive Surgical Devices market in 2022, holding the largest market share in terms of value. The United States is the dominant force in the North America Minimally Invasive Surgical Devices Market. The U.S. healthcare market is the largest in North America, and it accounts for a significant portion of global healthcare spending. This substantial market size naturally makes it the primary driver of the Minimally Invasive Surgical Devices Market in the region. The U.S. boasts some of the most advanced healthcare infrastructure and technology globally. Its hospitals, clinics, and healthcare institutions are well-equipped to offer a wide range of minimally invasive surgical procedures, attracting patients from within and outside the country. U.S. is a hub for medical research and innovation, fostering the development of cutting-edge minimally invasive surgical devices and techniques. Leading medical device companies and research institutions are located in the United States. The United States witnesses high surgical volumes across various specialties, including cardiovascular surgery, orthopedics, and oncology, many of which utilize minimally invasive techniques.

The Canada market is poised to be the fastest-growing market, offering lucrative growth opportunities for Minimally Invasive Surgical Devices players during the forecast period. Factors such as Canada has been steadily adopting minimally invasive surgical

techniques and devices, following the trends set by the United States. Surgeons and healthcare institutions in Canada are increasingly recognizing the benefits of minimally invasive procedures. Canada has been making substantial investments in its healthcare system, including the acquisition of advanced medical technologies and the expansion of healthcare infrastructure. This investment is likely to drive the adoption of minimally invasive surgical devices. Like the United States, Canada has an aging population, which often requires surgical interventions for age-related conditions. The demand for minimally invasive procedures among older adults is expected to grow. Canadian patients and healthcare providers have access to innovative minimally invasive surgical devices and technologies, allowing them to benefit from the latest advancements in the field. Canada actively collaborates with international partners and participates in medical research and innovation, facilitating knowledge sharing and the adoption of best practices.

### Key Market Players

Medtronic, Inc.

Stryker Corporation

B. Braun Medical Inc.

Olympus Corporation of the Americas

Boston Scientific Corporation

Zimmer Biomet Inc.

Johnson & Johnson

Karl Storz Endoscopy-America, Inc.

Abbott Laboratories

Philips North America Corporation

### Report Scope:

In this report, the North America Minimally Invasive Surgical Devices Market has been

*North America Minimally Invasive Surgical Devices Market Segmented By Type (Handheld Instruments, Surgical Sco...*

segmented into the following categories, in addition to the industry trends which have also been detailed below:

Minimally Invasive Surgical Devices Market, By Type:

Handheld Instruments

Surgical Scopes

Cutting Instruments

Guiding Devices

Electrosurgical Devices

Others

Minimally Invasive Surgical Devices Market, By Surgery Type:

Cardiovascular

Gastrointestinal

Gynecology

Urology

Others

Minimally Invasive Surgical Devices Market, By End-User:

Hospitals & Clinics

Ambulatory Surgical Centers

Others

Minimally Invasive Surgical Devices Market, By Region:

United States

Canada

Mexico

## Competitive Landscape

Company Profiles: Detailed analysis of the major companies presents in the North America Minimally Invasive Surgical Devices Market.

## Available Customizations:

North America Minimally Invasive Surgical Devices market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

## Company Information

Detailed analysis and profiling of additional market players (up to five).

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