

Global Smart Syringe Market - 2025-2033

<https://marketpublishers.com/r/G5CFD87FBDB9EN.html>

Date: May 2025

Pages: 180

Price: US\$ 4,350.00 (Single User License)

ID: G5CFD87FBDB9EN

Abstracts

Global Smart Syringe Market: Industry Outlook

The global smart syringe market reached US\$ 12.22 Billion in 2024 and is expected to reach US\$ 25.97 Billion by 2033, growing at a CAGR of 8.8% during the forecast period 2025-2033.

The smart syringe market is experiencing significant growth due to global awareness of safe injection practices, needlestick injuries, and demand for advanced healthcare technologies. These syringes are being adopted in hospitals, clinics, and other medical settings to prevent reuse and enhance safety. Regulatory mandates, particularly in developing regions, support market expansion. Technological advancements and a focus on infection control and vaccination programs are expected to sustain market momentum. Key players are investing in innovation and strategic partnerships to gain a competitive edge.

Global Smart Syringe Market Dynamics: Drivers & Restraints

Driver: Rising Number of Needlestick Injuries

As the number of needlestick injuries rises, there is an increasing demand for smart syringes with automatic needle retraction or needlestick prevention mechanisms are becoming increasingly popular in healthcare settings to prevent accidental needlestick injuries. These measures reduce the risk of exposure to bloodborne pathogens and contribute to a safer working environment.

For instance, the World Health Organization reports that approximately 3 million sharp injury incidents occur annually among 35 million healthcare providers. Nurses' needlestick injuries are linked to factors such as urgency, variable shift work, and lower

skill levels, which contribute to market growth. The rise in needlestick injuries among nurses is attributed to factors such as experience, academic degree, and younger age.

Restraint: High Costs Associated with the Devices

High costs can limit the affordability of smart syringes for healthcare facilities, particularly in resource-constrained environments or developing countries. This may hinder widespread adoption and accessibility of these advanced devices, affecting their potential impact on public health. Many healthcare facilities operate on tight budgets, and the introduction of high-cost smart syringes may strain these financial resources.

In such cases, healthcare providers may opt for traditional syringes that are more cost-effective, especially if they perceive the benefits of smart syringes as not justifying the additional expense. Healthcare systems often resist rapid changes due to various reasons, including financial investments, training requirements, and established practices. The high cost of smart syringes can contribute to resistance from healthcare professionals and institutions to switch from traditional syringes to these more advanced, but costly, alternatives.

Global Smart Syringe Market Segment Analysis

The global smart syringe market is segmented based on type, application, end user, and region.

Type:

The auto-disable syringes segment of the type is expected to hold 42.8% in the smart syringe market

Auto-disable (AD) syringes are single-use, designed syringes that automatically lock or disable after use, reducing infection transmission risk. They are crucial in safe injection practices, especially in immunization programs and public health initiatives. By breaking or preventing the plunger from retracting after one use, auto-disable syringes enhance patient safety and support infection control.

The auto-disable syringe market is fueled by healthcare policies advocating safer injection practices, especially in developing countries with high communicable diseases. The increasing prevalence of infectious diseases like HIV and hepatitis B and C, spread

through needle reuse, and large-scale immunization campaigns by organizations like the WHO and UNICEF are driving demand. Increased healthcare expenditure, awareness of healthcare safety, and stringent regulations for single-use medical devices further fuel this segment's growth.

For instance, injections are a common healthcare procedure, but 40% of global injections are given with reused equipment, leading to increased Hepatitis B, HCV, and HIV cases. WHO recommends using Auto-Disposable Syringes, which cannot be reused, to reduce these risks. SPM Medicare Pvt. Ltd., one of the largest manufacturers, offers Auto Disposable Syringes, which automatically retract the needle, maintaining its integrity and ensuring a safer, efficient, and hygienic method of administering injections.

Global Smart Syringe Market- Geographical Analysis

North America dominated the global smart syringe market with the highest share of 42.3% in 2024

The North American smart syringe market is fueled by advanced healthcare infrastructure, high adoption of innovative medical technologies, and strong regulatory frameworks. Increased awareness of needlestick injuries and disease transmission risks has led to a preference for smart syringes. Government initiatives, investments in healthcare safety, and the presence of leading market players contribute to the region's strong market position.

For instance, according to the Occupational Safety and Health Administration reports that around 5.6 million US healthcare workers are at risk of exposure to bloodborne pathogens through needlestick or sharps-related injuries, with a significant number of unreported cases. This instance drives the smart syringe market by increasing demand for safer injection devices, encouraging regulatory compliance, and prompting healthcare facilities to invest in advanced technologies that protect workers and reduce liability.

Asia-Pacific region in the global smart syringe market is expected to grow with the highest CAGR of 18.5% in the forecast period of 2025 to 2033

The Asia Pacific smart syringe market is expanding due to rising healthcare awareness, infectious disease incidence, and government efforts. Countries like India and China are experiencing large-scale immunization drives, leading to a strong demand for auto-

disable and smart syringes. International support from WHO and GAVI, improvements in healthcare infrastructure, and rising per capita spending are key growth drivers. The region's large population and expanding healthcare access provide significant market potential. For instance, in April 2024, Hindustan Syringes and Medical Devices (HMD) announced the launch of the most innovative and first-of-its-kind Dispojekt syringes with safety needles.

Global Smart Syringe Market- Key Players

The major global players in the smart syringe market include PAL, Shimadzu, Agilent, Baxter International Inc, Thermo Fisher Scientific Inc, Terumo Europe NV, Smiths Medical, Becton Dickinson and Company, Ypsomed AG, and Medtronic among others.

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