



# DISPOSABLE SYRINGE MARKETS

*(SAMPLE COPY, NOT FOR RESALE)*

Trends, Industry Participants, Product Overviews and Market Drivers

**TABLE OF CONTENTS**

1.	Introduction	4
1.1	Statement of Report	4
1.2	About this Report	4
1.3	Scope of the Report	4
1.4	Objectives	5
1.5	Methodology	6
1.6	Executive Summary	7
2.	Disposable Syringe Markets	8
2.1	Overview	8
2.2	Infection Control and Safety	9
2.3	Hospital Consolidations Pressure Companies to Reduce Prices	12
2.4	Needleless Injector Manufacturers Forge Strategic Alliances	12
2.5	Technological Advancements in Disposable Syringes	12
3.	Disposable Syringe Market Segments	14
3.1	Overview	14
3.1.1	World Market	14
3.1.2	U.S. Market	15
3.2	Total Disposable Needle and Syringe Market	16
3.2.1	Drivers of Safety Syringes	16
3.2.2	Restraints to Safety Syringes	17
3.3	Prefilled Syringes	17
3.4	Injector Pens	18
3.5	Needleless Injectors	19
3.6	Needle and Syringe Market Trends	19
3.6.1	Market Segments	19
3.6.2	Customer Needs	20
3.6.3	Competitor Analysis	20
3.6.4	Third Party Reimbursement	22
3.6.5	Regulation	23
3.6.6	Drug Discovery Trends	23
3.6.7	Demographic Shifts	23
3.6.8	Growth in Home Healthcare	23
4.	Technological Developments	25
4.1	AutoDisable Syringes	25
4.1.1	AD Syringes with Needle Retraction/Disposal Feature	26
4.1.2	AD Syringe with No Needle Retraction Feature	26
4.2	Needlestick Prevention Syringes	26
4.2.1	Automatic Needlestick Prevention Feature	26
4.2.2	Manual Needlestick Prevention Feature	27
4.3	Prefilled Syringes	27
4.3.1	Features of Prefilled Syringes	29
4.3.1.1	Dual Chamber Prefilled Syringes	29
4.3.1.2	Prefilled Pens	30
4.3.1.3	Needle Safety for Prefilled Syringes	30
4.3.1.4	Sterility Maintenance of Prefilled Syringes	31
4.3.1.5	Compatibility of Drugs with the Components of Prefilled Syringes	31
4.4	Pen Syringes	32
4.5	Autoinjecting Disposable Syringes	33
4.6	Uniject™ Injection Device	34
4.7	Microneedle	34
4.8	Needle Free Injection	35

4.9	SC Injection Technology	35
5.	Business Trends	36
5.1	Market Drivers	36
5.2	Market Prospects	37
5.3	Marketing and Distribution	38
5.4	Competitive Landscape	38
5.5	Acquisitions and Partnerships	39
6.	Future Technologies	40
6.1	Glide Solid Dose Injector (SDI™)	40
6.2	BD Physioject™	40
7.	Regulatory Measures	41
7.1	Safety Syringes in Europe	41
7.2	Reimbursement Outlook for Injectables	42
8.	Corporate Profiles	43
8.1	Abbott Laboratories	43
8.2	Albert David Limited	43
8.3	Alshifa Medical Syringes Manufacturing Company Ltd.	44
8.4	Althea Technologies, Inc.	44
8.5	Avitro, Inc.	44
8.6	Baxter International, Inc.	45
8.7	Becton, Dickinson and Company (BD)	45
8.8	Boston Scientific Corporation	47
8.9	B. Braun	48
8.10	Catalent Pharma Solutions, Inc.	48
8.11	C.R. Bard, Inc.	49
8.12	Changzhou Heshou Medical Appliance Factory	49
8.13	Connecticut Hypodermics, Inc.	49
8.14	Cook Incorporated	50
8.15	Coeur, Inc.	50
8.16	Covidien Ltd.	50
8.17	Dispokit Surgicals Private Limited	51
8.18	The Dispomed Witt oHG	51
8.19	DVT Dental AB	52
8.20	Dynarex Corporation	52
8.21	Firstar Healthcare Company Limited	52
8.22	Genesis Industries, Inc.	52
8.23	GlaxoSmithKline	53
8.24	Global Medical Tech, Inc.	53
8.25	Henke-Sass, Wolf GmbH	53
8.26	Hi-Tech Medical Products Ltd.	54
8.27	Hyaluron Contract Manufacturing	54
8.28	International Medication System Ltd.	54
8.29	JMS North America	55
8.30	Kawamoto Corporation	55
8.31	Kendall Healthcare Company/Covidien	56
8.32	Life-Shield Products, Inc.	56
8.33	Medex, Inc./Smiths Medical International	56
8.34	Medline Industries, Inc.	56
8.35	Merit Medical Systems, Inc.	56
8.36	Milestone Scientific	57
8.37	Novo Nordisk A/S	57
8.38	Owen Mumford Ltd.	58

8.39	Plas-Pak Industries, Inc.	59
8.40	Retractable Technologies, Inc.	59
8.41	Revolutions Medical Corporation	59
8.42	Safety Syringes, Inc.	60
8.43	Smiths Medical International/Medex, Inc.	60
8.44	Specialized Health Products International, Inc.	60
8.45	Star Syringe Ltd.	61
8.46	Terumo Corporation	61
8.47	Terumo Medical Corporation	61
8.48	UltiMed, Inc.	62
8.49	Vetter Pharma-Fertigung GmbH & Co., KG	62
8.50	Vita Needle Company, Inc.	62
8.51	West Pharmaceutical Services, Inc.	62
8.52	Wuxi Yushou Medical Appliances Co., Ltd.	63
8.53	Ypsomed AG	63

**INDEX OF TABLES**

Table 2.1: Global Market for Needles and Syringes, 2001-2010	9
Table 3.1: Worldwide Dollar Market for Injection Devices, 2000-2010	14
Table 3.2: Worldwide Unit Market for Needles and Syringes, 2000-2010	15
Table 3.3: U.S. Dollar Market for Needles and Syringes, 2000-2010	15
Table 3.4: Worldwide Disposable Needle and Syringe Market, 1998-2006	16
Table 3.5: Worldwide Market for Disposable Needles and Syringes by Region in 2006	16
Table 3.6: Worldwide Prefilled Syringe Unit Sales, 2000-2010	17
Table 3.7: Share of Worldwide Market for Prefilled Syringes by Region	17
Table 3.8: Worldwide Insulin Injector Pen Dollar Volume, 1998-2006	19
Table 3.9: Worldwide Market for Needle Free Injectable Drug Delivery Systems, 1996-2005	19
Table 3.10: Highlights of Several Leaders in the Disposable Safety Syringe Market	22
Table 4.1: Important Injectable Drug Therapies Using Prefilled Devices	28
Table 4.2: Some of the Major Providers of Syringe-Prefilling Services and Products	29
Table 4.3: Worldwide Prefilled Syringe Unit Sales, 1998-2006	29

## 1. Introduction

### 1.1 Statement of Report

The report examines the disposable syringe market. It provides detailed forecasts for the traditional and safety-engineered sharps markets. It describes the major drivers and restraints, technology trends, and industry challenges for the disposable syringe market. It examines the markets for blood collection sets, hypodermic access syringes and needles, sharps-based insulin delivery devices, and other specialty syringes and needles. Additionally, the study considers the disposable syringe supplies utilized in clinics and by patients in their homes to diagnose and monitor diseases, as well as to administer medications. This analysis is intended to provide basic market data pertaining to the U.S. and worldwide market segments. Each market segment is analyzed to determine size, growth rates, sales projections and factors influencing growth in the U.S. and internationally. Unit and dollar volumes are used to indicate market sizes.

### 1.2 About this Report

The study specifically focuses on market dynamics, current market drivers and emerging trends within the disposable syringe markets. Additionally, this review examines industry challenges and potential threats to syringe and needle supply manufacturers. The emphasis is on those companies actively developing and marketing products to hospitals, physicians and the general public for medically-related uses. We believe that some of the market segments have the potential for growth rates above 15% per year over the next five years. The reader should consult other TriMark Publications reports at <http://www.trimarkpublications.com> for a detailed discussion of the important individual market segments that are related to syringes, such as glucose testing, blood constituent analyses as used in hospital, point of care and doctor's office settings, and diabetic markets.

### 1.3 Scope of the Report

The disposable syringe market segments are identified as:

- Prefilled syringes.
- Safety syringes.
- Insulin injector pens.
- Needleless injectors.
- Vaccination injectors.
- Blood collection needles and syringes.
- Hypodermic needles and syringes.
- Insulin needles and syringes.
- Specialty needles and syringes.

This analysis provides an overview of individual disposable syringe market segments, some of which possess the elements that will lead to high and sustained growth rates for the near future. Also presented is a description of the ancillary supplies marketed by major companies in each market segment. The study presents qualitative and quantitative data, and information on key market measures and benchmarks such as:

- Market size by segment.
- Company market share.
- Product market share.
- Technology market share.
- Industry structure.
- Economic factors.
- Syringe design criteria.
- Product pricing.
- Emerging markets.
- Market projections.
- Strategic alliances.

- Proprietary technology.
- Technology factors.
- Market factors.
- Regulatory factors.

Technology areas include:

- **Autodisable/Single-use Syringes:** Syringes that deactivate after one use and are especially useful for vaccinations in developing countries.
- **Blood Collection Syringes and Needles:** Winged and standard phlebotomy access devices.
- **Retractable Syringes:** Syringes in which the needle is retracted into the syringe barrel after use, so the barrel acts as the sharps container.
- **Needleless Injectors:** Injection devices that deliver the pharmaceutical through the skin without the use of a needle.
- **Autoinjector Pens:** Pens that contain a syringe that is automatically triggered to insert the needle to deliver the pharmaceutical.

This report does not cover peripheral devices such as lancing devices for patients with diabetes. Moreover, it does not discuss non-syringe devices such as breast examination kits, temperature-measuring devices, fertility control devices, condoms, gels or creams. This review, furthermore, does not cover disposable plastic supplies for the healthcare market unless they are designed specifically for use and sale in one of the designated market segments covered in this report.

A number of companies that market syringe products are primarily distributors of these products, rather than the primary developer. These companies—necessary and important to the medical products industry—are covered here to a limited degree. Concentration is placed on the disposable medical supplies market segment in important worldwide markets such as the U.S., Japan and Europe. It focuses primarily on the hospital market segment, and, separately, on a description of the devices and supplies marketed by major companies in this segment for home use. Additionally, the report focuses on the vaccine segment of the disposable syringe market, and its growth in developing countries.

#### 1.4 Objectives

The primary objectives of this study are to:

- Identify important market drivers through a comprehensive look at various sales segments for disposable syringes.
- Obtain a complete understanding of the structure of the disposable syringe business from its basic principles to its applications.
- Discover feasible market opportunities by identifying high-growth applications in different medical areas, with a focus on the biggest and expanding markets.
- Focus on global industry developments through an in-depth analysis of the major world markets for disposable medical supplies, including forecasts for growth.
- Define the disposable syringe market including definitions, processes and trends.
- Assess the market drivers and bottlenecks, from the perspective of the medical and commercial communities.
- Discuss the potential benefits of disposable syringes for various sectors of the medical and commercial communities.
- Establish the current total market size and future growth of the disposable syringe market, and analyze the current size and growth of individual segments.
- Provide current and forecasted market shares by company.
- Discuss profit and business opportunities by individual market segment.
- Provide strategic recommendations for near-term business opportunities.
- Assess current commercial uses of disposable syringes.

- Assess the disposable syringe business model.
- Analyze and evaluate safety syringe products, and assess the market potential for existing and probable future products.
- Analyze product designs, technologies and marketing challenges of syringe manufacturers.
- Provide detailed descriptions of safety syringe market segments, market demographics and business strategies.
- Chart product sales data, market share and forecasts.
- Profile safety syringe companies, noting their product development activities, business strategies, and corporate alliances and affiliations.
- Assess the importance of pharma-device alliances and design partnerships on future safety syringe products.
- Evaluate the impact of economic, technological and regulatory factors on parenteral drug delivery markets.

The following questions are answered in this report:

- What are the near term business opportunities in disposable syringes?
- What are the current and forecasted sizes of the disposable syringe market?
- What are the business models currently used by companies in disposable syringe markets?
- What are the technologies used in disposable syringe supplies?
- Who holds the proprietary rights to disposable syringe technology?
- What regulatory processes must disposable syringes undergo in the U.S., Japan and Europe?
- How will technology changes in disposable syringes affect treatment and payment paradigms?
- How will litigation concerns increase physician and hospital use of disposables?
- How will technology reduce adverse growth trends and decrease total patient care cost?
- What are the drivers and impediments to growth for each market segment covered?

## 1.5 Methodology

This analysis is based in part upon interviews with research and marketing professionals of companies in the disposable syringe market. They were queried about their companies' products and development strategies as well as their overall thoughts about their industry segment. The information in this report is based on a review of the relevant published and web literature, interviews and meeting presentations. Our review is based on interview and meeting data, in addition to the peer-reviewed literature, with the aim of providing a more current and in-depth assessment than a literature review alone, and so also reflects our own interpretations, as well the opinions of our interviewees.

Sources of information for the study were trade association publications and meetings, product brochures and catalogs, and company literature. Where the companies under discussion were publicly held, an examination of the annual reports, 10k filings and financial reports were used as the basis of the data reported. Important data sources include the Health for All Database of the World Health Organization (WHO), data published by the statistical office of the European Communities (Eurostat), as well as various health data from the United Nations (UN) and the Organization for Economic Cooperation and Development (OECD). Where possible and practicable, the most recent data available have been used.

The author of this report has a Ph.D. with over 40 years of consulting experience, has written over 1,000 articles, and has published four books. The editor of the report has a Ph.D. in biophysics and has worked as a research assistant professor at the University of Missouri. Some of the statistical information was taken from Biotechnology Associates' databases and from TriMark's private data stores. The information set forth in this study was obtained from sources that we believe to be reliable, but we do not guarantee the accuracy, adequacy or completeness of any information contained herein or the results obtained by the use of such information.

Key information from the business literature was used as a basis to conduct dialogue with and obtain expert opinion from market professionals with regard to commercial potential and market sizes. Senior managers from major company players were interviewed for part of the information in this report.

*Primary Sources:* TriMark collects information from hundreds of Database Tables and many comprehensive multi-client research projects and Sector Snapshots that we publish. We extract relevant data and analytics from TriMark's research of the past three years as part of this data collection. We also extract qualified data feeds from e-questionnaire responses and primary research responses for this compilation.

*Secondary Sources:* TriMark uses research publications, journals, magazines, newspapers, newsletters, industry reports, investment research reports, trade and industry association reports, government-affiliated trade releases and other published information as part of our secondary research materials.

The information is then analyzed and translated by the Industry Research Group into a TriMark study. The Editorial Group reviews the complete package with product and market forecasts, critical industry trends, threats and opportunities, competitive strategies and market share determinations. The report's conclusions are verified through intensive interviewing of top-ranking companies in the industry.

### ***TriMark Publications Report Research and Data Acquisition Structure***

The general sequence of research and analysis activity prior to the publication of every report includes the following items:

- Completing an extensive secondary research effort on an important market sector, including gathering all relevant information from corporate reporting, publicly available databases, proprietary databases, direct meetings and personal interviews with key personnel.
- Formulating a study outline with the assigned writer, including important items:
  - Market and product segment grouping and evaluating their relative significance.
  - Key competitors' evaluations, including their relative positions in the business and other relevant facts to prioritize diligence levels and assist in designing a primary research strategy.
  - End-user research to evaluate analytical significance in market estimation.
  - Supply-chain research and analysis to identify any factors affecting the market.
  - New technology platforms and cutting-edge applications.
- Identifying the key technology and market trends that drive or affect these markets. Assessing the regional significance for each product and market segment for proper emphasis of further regional/national primary and secondary research.
- Launching a combination of primary research activities, including two levels of questionnaires, executive-direct focused, company-specific and region-specific communications to qualified and experienced senior executives worldwide.
- Completing a confirmatory primary research assessment of the report's findings with the assistance of Expert Panel Partners from the industry being analyzed.

## **1.6 Executive Summary**

The main product groups within the syringe and needle sector of this report include disposable and safety syringes, injection pens, needleless injectors and specialty needles. This market is driven substantially by a disparate collection of situations from disease management and prevention to the social condition of intravenous (IV) drug abuse. Each of these areas and its potential to influence demand for injection equipment is discussed. Detailed examination of the injection pen and needleless injector market segments is presented here, as well as a comment on reusable syringes. While the market for injection devices is largely driven by safety concerns, as well as by trends in disease management, a number of key issues affecting the use of disposable syringes in the home healthcare market are discussed in this report. They include such topics as ease-of-use/patient compliance and sharps disposal.

## 2. Disposable Syringe Markets

### 2.1 Overview

The main product groups within the syringe and needle sector of this report include:

- Disposable syringes.
- Disposable safety syringes.
- Injection pens.
- Needleless injectors.
- Specialty needles.

Syringe and needle device products are sold to and used by healthcare providers, including acute care hospitals, alternate care facilities, doctor's offices, clinics, emergency centers, surgical centers, convalescent hospitals, Veterans Affairs facilities, military organizations, public health facilities and prisons. Important syringe markets are:

- Critical care hospitals.
- Clinics and ambulatory facilities.
- Large managed care practices.
- Independent physician practices.
- Long-term care facilities.
- Medical research.
- Home healthcare.

The syringe and needle device market continues to be a market in transition. The nature of the products comprising the market is changing from customary devices to those developed with safety as a priority. The implementation of these safety-driven products is primarily in the U.S. disposable syringe market, with sales improving outside the U.S. The impetus for the change to safety devices is the risk that coexists with needlestick injury, which includes the transmission of over █ blood borne pathogens, including human immunodeficiency virus [HIV, the virus that causes acquired immune deficiency syndrome (AIDS)], hepatitis B and hepatitis C. Because of the occupational and public health hazards posed by conventional disposable syringes, public health policy makers, domestic organizations and government agencies have been involved in the effort to get more effective safety needle products to healthcare workers. Federal legislation requiring that safety needle products be used for the vast majority of procedures (the Needlestick Safety and Prevention Act) was signed into law in November 2000, was implemented thereafter by the Occupational Safety & Health Administration (OSHA) and became effective for most states in April 2001.

The global market for injection devices is large—greater than \$█ in █—and reasonably buoyant, with an average annual growth forecast to be █%, producing a market size of over \$█ in █. The worldwide market for needles and syringes (a subset of the injection devices market), had sales in excess of \$█ in █ and is growing at an estimated annual rate of █%, which will produce a market size of more than \$█ by █.

Some of the product groups listed above showed negative growth in █, but the next █ years should bring modest gains again. Among the strongest sellers will be prefilled syringes and prefilled nebulizers. While hospitals will remain the largest market for disposable medical supplies, outpatient sites and home healthcare will be fast growing markets.

The disposable syringe market is driven substantially by a variety of arenas, including disease management and prevention, and IV drug abuse. Each of these areas has the potential to increase injection equipment sales. Disposable needles and syringes, including prefilled syringes, hold a dominant share, and despite significant advances in the use of needleless injectors, the disposables are expected to retain their position. While the U.S. is and will remain the region of highest share in the overall injection devices market, it is forecast that Europe will overtake it in the disposable needle and syringe segment within the next █ years. Over a course of more than █ years, the concept of disposables in syringes for medical use has engulfed the U.S. almost completely.