CATEGORY RESOURCE GUIDE

Standard needles and syringes

Included in this document

(Click to view each section)

Vizient award overview

Awarded suppliers

MS7290 – Becton Dickenson

Distribution

Both direct and distributed through the following distribution channels:

Medical-surgical
Laboratory

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Making supply uncertainty a thing of the past, not the future

To help members maintain supply assurance for essential products, Vizient shares insights via **category resource guides** on vizientinc.com. These category-specific documents contain comprehensive manufacturing, logistics and utilization insights to help members source supplies with confidence. Category resource guides are one way we're building supply assurance together.

Manufacturing insights

Product overview

Standard syringes are made of polyethylene (PE) and polypropylene (PP) plastic and consist of a plunger or piston, a barrel and the tip which is the attachment point for a needle.

Syringes have graduated marks indicating volume of fluid within and is almost always transparent. Graduation lines are in milliliters (mL) and fractions of a mLThe larger the capacity, the larger the interval between lines.

The tip of the syringe can either be a Luer lock, slip-tip or the lesser used eccentric tip. The Luer lock uses a screw-lock mechanism to secure the needle. The slip-tip allows the needle to be pushed on to the tip of the syringe and held in place by friction. The catheter tip is like the slip-tip except longer and tapered. The eccentric tip has a nozzle not in the center but at the side. It is used when the needle needs to get very close to parallel with the skin, as in intradermal injections. (The other tip type is called a Catheter tip due to their tapered shape and is not used with a needle. Catheter tip syringes come in 30mL or 60mL syringe sizes. These are most commonly used to flush a feeding or nasogastric tube (NGT) or a drain, for irrigating or aspirating wounds and an NGT.)

Syringes vary in size from 1 to 60 mL

Hypodermic needles have three parts: the hub which attaches to the syringe, the shaft which is the long stem of the needle and the bevel which is the sharp end. The hollow part of the shaft is called the lumen. Typically, needles are made from stainless-steel and can easily penetrate the skin.

The size of a needle is designated by length and gauge. The length is measured from the tip of the bevel to where the shaft meets the hub. Needles may range in length from 5/16 inch to 3 1/2 inches. Some specialty needles, like spinal needles, may be longer. The gauge of the needle refers to the size of the hole in the needle which ranges from 7 gauge (the largest) to 34 gauge (the smallest).The lower the number of millimeter “gauge,” the shorter the needle. And the higher the gauge, the thinner the needle will be.

Selection factors

Vizient contracts include the following options:

- Standard syringes (see above)
- Standard hypodermic needles (see above)
- Syringe/needle combinations:
  - Prepackaged syringes with a pre-attached hypodermic needle
- Insulin and tuberculosis syringes:
  - Insulin syringes are used to inject insulin and feature small barrels with markings at 1- or 2-unit intervals. The needles range in length from 4 millimeters (mm) to 12.7 mm, and the thickness ranges from 28 to 31 gauge.
  - A tuberculin (TB) syringe holds from 0.5 to 1 mL of liquid with a 25-to-30-gauge needle. They are commonly used for tuberculosis (TB) and allergy testing.
  - Insulin pens: delivers a preset dose of insulin. Additionally, because the dose is preset, this syringe can offer a safer way to administer insulin for those with visual impairments.
- Oral syringes:
  - Oral syringes are used to dispense liquid solutions and suspensions orally and measure liquids expressed in milliliters. They do not have threaded tips because no needle needs to be attached. They are available in 1-, 3-, 5- and 10-mL sizes.

Safety needles:

- Manual retracting safety needles:
  - Manual retracting safety needles/syringes use a sheath or hood can be slid over the injection needle. Once the shield is engaged, it protects workers and patients from needle-related injuries.

- Mechanical retracting safety needles and syringes:
  - These syringes use a spring-loaded retraction mechanism to withdraw the needle into the barrel of a syringe. Retractable syringes prevent reuse, needlesticks and reduces hazardous sharps waste.
- Syringe-shielding safety needles: and syringes:
  - This system is typically used in nuclear medicine. The shield slides over the syringe for protection from radioactive liquids.
- Needle guard safety needles and syringes
  - A protective cover for surrounding the needle is intentionally activated following the use of the syringe.

There are four types of injections:

- Intramuscular – Injections are into a selected muscle; syringe is held at a 90-degree angle.
- Intradermal – Shallow injections go into the dermis, which is just under the surface of the skin between the epidermis and the subcutaneous tissue; syringe is held at a 10- to 15-degree angle.
- Subcutaneous – Injections are given in the fatty tissue under the skin in the subcutaneous tissue; syringe is held at a 45-degree angle.
- Intravenous – Injections or infusions are given within the vein; syringe is held at a 25-degree angle.

There are four factors which need to be considered in choosing the size of a needle to use for an injection:

- The type and viscosity of the medication
- The size and age of the patient
- Whether the medication is a vesicant and/or would cause SQ tissue irritation, damage or death.
- The desired absorption rate for the medication

There are two categories of safety engineered devices:

- User activated safety devices: These devices require that the safety guard is manually and deliberately activated to cover the sharp. This includes pressing a protective sheath over the needle.
- Passive safety devices: These devices automatically cover the sharp. This includes automatic retractable needle technologies.

Safety features for both must provide immediate permanent containment of the needle by a single hand which must always stay behind the needle.

For needle gauge and length recommendations, the Centers for Disease Control and Prevention (CDC) offers this vaccine administration guide.

Raw materials

Resin is a major component in these syringes, and the fluid which fills them is a consideration. Heparin is often constrained due to the raw materials (swine).

The lastest manufacturing insights are available here.

Regulatory and approvals

Quick Reference Guide to the Bloodborne Pathogens Standard

The Occupatoinal Safety and Health Administration (OSHA) provides information about the bloodborne pathogens standard as well as the Needlestick Safety and Prevention Act.

ISO 7886-1:2017 Sterile Hypodermic Syringes for Use – Part 1: Syringes for Manual Use

This abstract specifies requirements and test methods for syringes, with the exception of insulin syringes which is found in ISO 8537.

Prefilled Saline Flush Syringes

FDA's 510(k) Premarket Notification Database

The U.S. Food and Drug Administration (FDA) lists FDA-cleared prefilled saline flush syringes under the product code NGT (saline, vascular flush).

Non-awarded suppliers

Medline has partial automation and Medefil has full automation; however, neither has increased capacity, but both state they have plans to do so within two years. There are a few smaller companies such as Nurse Assist that offer alternatives.

Terumo has started producing its syringes for the human market (vs. veterinary). It has previously produced for the human market and is restarting to alleviate the extreme constraints. Smiths Medical and Terumo indicate they have a surplus of 10 mL syringes.

Logistics insights

Product storage

Store syringes at room temperature in a dry area. The Joint Commission recommends that both needles and syringes be stored under lock and key when not in use to prevent unauthorized access.

Utilization insights

Clinical contract support resources

The CDC offers FAQs regarding safe practices for medical injections.

State-by-State Provisions of State Needle Safety Legislation

This offers an overview of recent legislative developments on provisions for needle safety, by state.

Quick Reference Guide to the Bloodborne Pathogens Standard

OSHA answers questions related to the Bloodborne Pathogens standard, the Needlestick Safety and Prevention Act and more.

BD Disposable General Use Syringe Technical Data Sheet

This data sheet provides materials, tip dimensions, standard information and more.

Glass Syringes for Delivering Drug and Biological Products: Technical Information to Supplement ISO Standard 11040-4

The FDA offers guidance in this document focusing on connectivity issues between glass syringes and connecting device(s).

Building supply assurance

Conservation strategies

The FDA is aware of the interruptions of prefilled flush syringes and provides the following recommendations:

FDA's Prefilled Saline Flush Syringe Conservation Strategies – Letter to Health Care Personnel

Because predicting the next supply shortage is impossible, it is important that healthcare providers not only adopt and implement care practices strategies to conserve critical products and supplies, but it is also equally as important to sustain leading practices that will help ensure the availability of essential products post recovery and in the future.

Healthcare providers and other leading organizations have identified and recommend the following actions:

- Assess and identify all hospital services.
- Identify and list critical products, supplies and resources required to sustain operation of those areas identified and ranked in the first step.
- Maintain the internal planning team document with accurate information. Review and update the document on a routine basis with current employee contact information. If a team member no longer works in the organization, identify the replacement and communicate the information to all stakeholders.
- Communicate practice changes and procedures frequently to staff and stakeholders.
- Hold regularly scheduled planning meetings in the absence of a supply chain shortage or event. This will help to ensure that identified processes and protocols remain relevant and any issues requiring revisions and/or updates are addressed in advance of a shortage or disaster.

If your organization has implemented conservation strategies for this category or any other, share your information here. The information you share will be anonymous unless you grant Vizient permission to share.

Supply chain programs

Novaplus

Becton Dicknson (MS7290) is a Vizient Novaplus® supplier. Through Novaplus, there is access to products more than 15,000 individual line items – including numerous high-demand items. The brand encompasses a broad range of categories needed across the care continuum, such as anesthesia, and services, diagnostic imaging, food, laboratory, medical, orthopedic, pediatric, pharmacy, respiratory and surgical. Today as the capabilities, expertise and purchasing power of Vizient grow, we offer expanded value so you unlock even more from your private-label purchasing. For more information, click here.

Planning for disruptions

Best practice strategies

Injection safety practices provide the optimal safety to patients, personnel and others from transmission of diseases and unnecessary needlesticks.

Vaccine Administration

The CDC offers general best practice guidelines for immunization.

Handouts for Patients and Staff

The Immunization Action Coalition offers best practices, checklists, worksheets and guidance for vaccinations.

Injection Safety Online Training Module

This module is a part of the Nursing Home Infection Preventionist Training Course which provides an overview of injection safety and recommended safe injection practices.

Injection Safety Campaign Materials

This CDC and Safe Injection Practices Coalition led this campaign to raise awareness about safe injection practices.

World Health Organization (WHO) best practices for injections and related procedures toolkit

This offers best practices for injections and phlebotomy/blood collection as well as education on occupational risks and the management of bloodborne pathogens.

Some additional best practices should be as follows:

- As a rule, select a syringe with a capacity that is the next size larger than the volume to be measured. For example, if you are needing a volume of 3.8 mL, choose a 5 mL syringe.
- Syringes should not be filled to capacity because the plunger could dislodge.
- Always use the aseptic technique in handling, preparing, storing and administering injections.
- Provide competency-based training and periodic observations.
- According to the CDC, a syringe and needle are to be used only once and for a single patient and then discarded. At this point, the needle and the syringe are contaminated.
- A syringe and needle are considered contaminated once they access a port of an IV bag and should not be reused but disposed of.
- Always enter a medication vial with a sterile needle and sterile syringe, even for the same patient.

Vizient offers the following best practices to help members manage disruptions. These suggestions are available to help you gain insight on how the industry is managing supply challenges.

If your inventory is low

Vizient is committed to bringing hospitals, manufacturers, distributors and the industry together to talk about this issue and any long-term implications. We feel continued dialogue about the issue by experts, including hospitals, manufacturers, distributors and industry, will be crucial to ultimately arriving at a solution to the vexing issue. During critical supply periods, members should continue to order their normal levels of products in order to ensure continued availability for all institutions.

- If you begin to experience a shortage, do the following:
- Evaluate your current supply
- Contact your local supplier representative and report exactly how many days' supply you have left.

- If you are not getting a response from suppliers, Vizient so we can facilitate member and supplier; provide whether you are ordering Please provide the product and distribution information (direct or through a distributor)., .
- We encourage you to continue the conversation within your organization, with your peers, and with the manufacturers and distributors.
- Submit inquiries to disasterresponse@vizientinc.com.

Expedite supply resolution

To expedite resolution for supply issues, contact your local supplier and provide the following information:

- The description and item number of the product that is experiencing a shortage
- Whether you are purchasing directly or through an Authorized Distributor
- Days' supply remaining in your inventory

If expanding your facility

We suggest members notify suppliers when expanding their facilities to assist in planning and anticipate increases in allocations. You should consider notifying your suppliers of at least three months ahead of the completion of your facility to ensure sufficient capacity.

Building supply assurance together

Collaboration among suppliers, distributors, members and Vizient strengthens the assurance of supply for all stakeholders. Our wealth of experience, actionable data and predictive planning helps to strengthen supply assurance. Further, our work with stakeholders focuses on supply chain risk mitigation as we collaborate to enhance data, increase supply visibility and expand inventory access.

Four themes keep us centered and are the pillars of our supply chain assurance efforts: insights, access, enablement and advocacy. Learn more about our supply assurance strategy.

In the event of a supply disruption, Vizient will publish a product disruption brief to the Supply Assurance webpage. Curated by Vizient experts, these documents provide a summary of current conditions and strategies to manage product-level disruptions.

In addition to our disruption briefs, Vizient also compiles all known disruptions into the monthly Supply Update Executive Summary which tracks all supply chain disruptors, including current market challenges, category-specific product updates and recovering markets.

Whether a supply disruption is the result of a natural or human-made disaster, it is imperative that members are informed. The Vizient Disaster Preparedness webpage was developed to help providers meet supply chain needs before, during and after an event. The Supply Update section of the guide is updated on a frequent and routine basis with communication from all awarded suppliers that have manufacturing facilities in areas impacted by a disaster. Additionally, a status update list of those manufacturers whose operations have been affected, as well as a list of impacted product(s), will be maintained and updated as that information is received from the supplier.

The importance of an internal planning team

Identifying an internal planning team is imperative to managing supply, mitigating risks and sustaining operations during a supply shortage. According to the Supply Chain Disaster Preparedness Manual developed by the CDC, internal teams should consist of representatives from supply chain, purchasing, emergency management, each clinical/care delivery area, inventory staff, receiving and distribution staff. Relative to medication and solutions, Vizient member feedback indicated the pharmacy department as an integral member to the internal team, as clinical/pharmacy practice changes may occur. Additional members may include the facilities safety manager, security, risk management, legal, marketing and communications, and public relations.

A simple internal team planning document will help to identify, contact and quickly convene relevant team members. See the sample below:

Name	Title	Department/role	Phone	Email

Once an internal team is identified, additional considerations before beginning the development and implementation of a recovery plan include the following:

- The team's goals
- The responsibilities of each planning team member
- Other department/team members who may need to be involved
- Frequency of team meetings
- How the goal/mission be accomplished
- How information will be documented and communicated to the broader audience
- A current framework for success either within your facility or from a leading organization

Stakeholder communication

During supply chain product disruptions, it is vital that accurate and timely information is disseminated to internal and external stakeholders. The following actions should be considered in an effort to facilitate and ensure informed decisions:

- Designate the point person or persons who will be responsible for developing, disseminating and monitoring all communications coming from the internal planning team.
- The internal planning team should collaborate key messages/information to stakeholders, such as changes in policies and/or practice changes.
- Clearly communicate the roles and responsibilities of all staff based on the agreed upon recovery plan. If there are changes to the plan at any time, timely communication of those changes will help to increase risk mitigation and minimize interruption of patient care.
- Establish communication mechanisms for information exchange. Examples include but are not limited to regularly scheduled briefings and meetings, in-services, staff trainings, live/recorded webinars, memos and emails.
- Determine the frequency of reminders and updates regarding supply disruption status and anticipated resolution.
- Frequent updates and reminders after a supply disruption has been mitigated or eliminated help to ensure ongoing success and sustainability of best practices.

Supply management and logistics

A leading practice identified in managing recent shortages is a centralized management approach of impacted product codes. A key responsibility of the internal planning group is to identify all affected product codes and to determine the amount of supply on hand, expected and any allocation protocols implemented by the supply source. Once the current product status is determined, the following actions are recommended:

- Update and maintain an accurate inventory list. Each care area that utilizes any product code on the inventory list should identify a point person to collect on hand and usage levels on an agreed upon frequency. That information should be reported back to the internal planning team. Inventory can either be managed by care delivery areas or in a centralized manner.
- Identify space in the facility to store, manage and distribute product. Designate authorized personnel responsible for maintaining the inventory (expiration dates temperature, ventilation, utilization, equipment maintenance and repair, etc.).
- Develop and seek approval for the inventory management protocol and communicate this information to all stakeholders.
- Update and maintain accurate purchase order and allocation protocols from the contracted supplier and your group purchasing organization (GPO).
- Update and maintain accurate emergency contact information for all suppliers as well as internal stakeholders. This process should be done at least every six months.

- Review the inventory management status on an agreed upon frequency with the internal planning group. Assess for barriers to its effectiveness, implement any changes necessary and communicate those changes to all stakeholders.

Planning for all levels of care and ancillary products

Feedback from lessons learned indicated the need to include all levels of care and ancillary products, if applicable, in the conservation plan. If your provider system has children's hospitals, ambulatory surgery centers, outpatient clinics and/or long-term care facilities, utilization and logistics of products and supplies must be incorporated into the plan. Additionally, it is vital that ancillary products are considered when contemplating allocations and purchase orders. During the recent drugs and solutions shortages, as large volume solution bags went on back order, smaller volume bags, compounding products, and syringes also went on back order because of practice changes. Therefore, conservation planning should include actual and the additional ancillary products that may be required to sustain a clinical and/or operational practice change

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