CATEGORY RESOURCE GUIDE

IV catheters

Included in this document

(Click to view each section)

Vizient award overview

Awarded suppliers

MS6851 – Becton, Dickinson & Co.
MS6852 – B. Braun
MS6853 – ICU Medical
MS6854 – Retractable Technologies

Distribution

Both direct and distributed through the following distribution channel:

Medical-surgical

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Questions? Contact supplyassurance@vizientinc.com, pharmacyquestions@vizientinc.com, novaplus@vizientinc.com.

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 assurance profiles are one way we're building supply assurance together.

Market landscape

Peripheral intravenous catheters (PIVCs) are the most common vascular access catheters in hospitals, accounting for more than 95% of vascular access devices used. These devices are intended for short-term use, usually no longer than three days. The flow rates of PIVCs are lower than those of central line catheters, such ascentral venous catheters (CVC), making them best suited for blood sampling and infusing fluids and medicine. The key advantages of PIVCs over other catheters are ease of placement and affordability. While other types of catheters are often placed by vascular surgeons or interventional radiologists, PIVCs can be placed by nurses across all departments.

Since 2000, the PIVC market has experienced a rapid conversion from conventional to safety PIVCs.

Manufacturing insights

Product overview

PIVCs are short, single-lumen, thin plastic catheters which are primarily used for the administration of medications, fluids, parenteral nutrition, chemotherapy, radiologic contrast and blood products, as well as providing easy access for repeated blood sampling. They are placed for short-term venous access (up to 96 hours). Each year, nearly 300 million peripheral catheters are placed throughout the U.S.

The devices are available in various gauges (14 to 26 g; a lower gauge number signifies a larger catheter diameter), lengths (19 to 45 mm), compositions and designs. Manufacturers of IV catheters leverage proprietary technologies on their catheters which make them all a little different in feel and function. Catheters will have a flashback chamber, needle grip, hub and wings, catheter, and needle. Safety catheters will also have some type of needle cover.

Once in place, a catheter may remain if there is no accidental dislodgement, occlusion, inflammation or infection.

Selection factors

The following table provides an overview of some of the general items offered on the Vizient multisource IV catheter contracts:

Features	Description	Safety	Non-safety	Miscellaneous
Conventional	Conventional catheters are simple, inexpensive and without wings or a safety mechanism.		x	
Radiopaque (radio-detectable)	There are stripes running down the length of a catheter to allow good visibility under X-ray.	x	x	
Fluorinated ethylene propylene (FEP)	It is a low-friction, usually firmer catheter which makes it easier for deeper insertion, like into an artery,	x	x	
Polyurethane	It is softer and more flexible than FEP which makes it more comfortable for a longer in-dwelling time.	x	x	x
Passive	There is a safety mechanism that requires no separate step to activate the safety feature.	x		
Active	A safety mechanism requires a manual, deliberate activation.	x		
Winged	It provides better placement and insertion of the catheter, as well as a secure fixation to the skin.	x		x
Closed system	The needle, stabilization platform and extension tubing are all pre-assembled.	x		x
Shielded system	It reduces the risk of blood exposure and needle stick.	x		
Blood control	A valve within the catheter closes to prevent bleeding with needle retraction.	x		
Neonatal	It is for the first four weeks of a child's life.	x		

Features	Description	Safety	Non-safety	Miscellaneous
MultiPort	The device allows multiple types of treatments through one catheter.			x
Luer access	There is a needleless connector.			x
Extension	Tubing connects to the IV catheter that allows for treatments without additional sticks to the patient.			x
Needle shield	There is a passive needle cover.			x

Safety features were developed to reduce the incidence of accidental needle sticks and blood exposure. All safety features must provide immediate and permanent containment of the needle and the hand must always stay behind the needle.

In choosing the right size of catheter, you need to consider the type of therapy that is prescribed, the properties of the solution, the length of the treatment, the vascular integrity of the patient and where the catheter will be placed. The chart below provides some approximate guidelines for catheters and their recommended uses.

Peripheral IV catheter chart

Gauge size	External diameter*	Length*	Flow rate*	Recommended uses
14	2.1 mm	45 mm	240 mL/min	Trauma, rapid blood transfusion, surgery
16	1.8 mm	45 mm	180 mL/min	Rapid fluid replacement, trauma, rapid blood transfusion
18	1.3 mm	32 mm	90 mL/min	Rapid fluid replacement, trauma, rapid blood transfusion
20	1.1 mm	32 mm	60 mL/min	Most infusions, rapid fluid replacement, trauma, routine blood transfusion
22	0.9 mm	25 mm	36 mL/min	Most infusions, neonate, pediatric, older adults, routine blood transfusion
24	0.7 mm	19 mm	20 mL/min	Most infusions, neonate, pediatric, older adults, routine blood transfusion, neonate or pediatric blood infusion
26	0.6 mm	19 mm	13 mL/min	Pediatrics, neonate

**Varies by specific catheter and manufacturer*

Raw materials

Silicone, PVC, polyethylene or polyurethane

The latest manufacturing insights are available here.

Regulatory and approvals

Securing Medical Catheters

This Occupational Safety and Health Administration (OSHA) fact sheet provides information on hazards, risks, securement options and OSHA requirements related to medical catheters.

Infusion Therapy Standards of Practice

Guidelines and clinical practice recommendations for infusion therapy practice include infection prevention and control, infusion equipment, vascular access device selection, placement, management, and complications.

ISO 10555-1:2013 Intravascular Catheters – Sterile and Single-Use Catheters – Part 1: General Requirements

This standard is reviewed every five years and will be replaced by ISO/DIS 10555-1, which is under development.

Non-awarded suppliers

Terumo – SurFlo ETFE IV catheters and SurFlash polyurethane IV catheters

Logistics insights

Transportation/shipping

All suppliers utilize Authorized Distributors in this space.

See additional freight update here.

Product storage

- Keep IV catheters at room temperature.
- Keep IV catheters in a dry environment.
- Keep IV catheters as close as possible to the location/s they will be used.

Utilization insights

Clinical contract support resources

Peripheral IV Catheter Insertion and Use of Ultrasound in Patients with Difficult Intravenous Access

This study discusses the consequences of difficult IV access (DIVA) and how ultrasound can be one strategy to help improve the success of peripheral IV catheter placement.

Peripheral IV Device Management

This provides recommended clinical guidelines on the management of peripheral intravenous catheters for patients in hospital, outpatient and home healthcare settings.

Guidelines for the Prevention of Intravascular Catheter-Related Infections

The Centers for Disease Control and Prevention (CDC) offers recommendations on education, training, site and catheter selection, aseptic technique, skin preparation, dressings, and more.

Building supply assurance

Conservation strategies

Because predicting the next supply shortage is impossible, it is important that healthcare providers not only adopt and implement care practice strategies to conserve critical products and supplies, but it is 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:

- Consider your policies on the frequency of changing a PIVC.
- Make sure staff is properly trained to increase success on initial placement.
- Select the right size and type of catheter for the patient age and treatment ordered.
- To maximize indwelling time, practice appropriate aseptic techniques, barrier precautions, skin preparation and dressing regimens.

Additionally, with other products and services do the following:

- Assess and identify all hospital services using IV catheters.
- 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 IV catheters or any other category, share your information here. The information you share will be anonymous unless you grant Vizient permission to share.

Environmentally Preferred Sourcing Program

The Environmentally Preferred Sourcing (EPS) Program provides the necessary framework for your health care organization to implement and maintain an environmentally friendly program that supports your organization's overall sustainability objectives.

You can access the broadest, most cost-effective portfolio of environmentally preferred products in the industry – more than 450,000 contracted products in more than 1,400 agreements – as well as expert insights and analytics to advance your organization's environmental and sustainability initiatives.

Planning for disruptions

Distributor recommendations

Best practice strategies

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.

- In general, select the smallest gauge of catheter that can be effective for the therapy as this will reduce the risk of vessel trauma.
- Avoid placing a catheter in an injured, infected or burned extremity, if possible
- The non-dominant upper extremity is commonly chosen because of comfort and reduced risk of dislodgement.
- Some solutions are better infused through a central vein catheter because they are thick or can cause tissue irritation. Consult the prescribing practitioner if unsure.
- If initial catheterization is unsuccessful, the needle should never be reintroduced into the catheter. This could result in catheter fragmentation and embolism.

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 – hospitals, manufacturers, distributors and industry – will be crucial to ultimately arriving at a solution to any vexing issue. During critical supply periods, members should continue to order their normal levels of products 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, contact Vizient so we can facilitate communication between member and supplier; provide whether you are ordering direct or through distribution (medical/surgical or pharmacy), and indicate supplier and distributor (if applicable) when you contact Vizient.
- We encourage you to continue the conversation within your organization, with your peers, and with the manufacturers and distributors to identify ways to manage your ongoing IV catheter needs.
- 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 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 improving 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 will 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. For example, 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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