

CATEGORY RESOURCE GUIDE

Anesthesia masks and circuits

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Vizient award overview

Awarded suppliers

MS5381 – Ambu
 MS5382 – Medline Industries
 MS5383 – Smiths Medical
 MS5384 – Vyair Medical
 MS5385 – Typenex Medical

Distribution

Both direct and distributed through the following distribution channels:

Medical-surgical



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

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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 profiles are one way we're [building supply assurance together](#).

Market landscape

The anesthesia mask and circuits market is highly competitive and includes a variety of players, including large multinational corporations as well as smaller regional manufacturers. Typically, price and availability are the driving factors. Fit of the mask is important, and the anesthesia circuits must be compatible with the anesthesia machine and patient size.

Manufacturing insights

Product overview

Anesthesia masks and circuits are disposable devices used to deliver oxygen and anesthetic gases to the patient and remove carbon dioxide from expiratory breath during a surgical procedure. The circuit configurations are made up of multiple components.

Selection factors

When selecting anesthesia masks and circuits, it is important to consider the patient's size, the type of breathing circuit and the fresh gas flow rate. Anesthetic breathing circuits can be broadly classified into rebreathing and non-rebreathing circuits, depending on how they prevent exhaled carbon dioxide from being rebreathed by the patient.

Rebreathing circuits use carbon dioxide absorbers to remove CO₂ from the circuit, while non-rebreathing circuits remove CO₂ by blowing it away with fresh gas flow. Rebreathing circuits are more economical and recycle much of the carrier gas and agent, while non-rebreathing circuits have a breath-by-breath response to vaporizer changes and low resistance.

When selecting an anesthesia mask, it is important to ensure that it fits the patient's face and is not too tight or too loose. The mask should be made of a material that is easy to clean and disinfect. The size of the mask should be appropriate for the patient's snout length and width.

When selecting an anesthesia circuit, it is important to ensure that it is compatible with the anesthesia machine and the patient's size. The circuit should be free of leaks and should be checked before every procedure.

OEM and manufacturing location

AirLife – The majority of AirLife's products are manufactured in Mexicali, but some are made in China to help drive down cost.

Ambu - Circuits are made in Noblesville, Ind., and some dual limb circuits are manufactured in Juarez, Mexico. Face masks are made in China.

ICU – Self-manufactured products are made in Tijuana, Mexico, and masks are sourced from Asia.

Typenex – Anesthesia masks are made in China, while circuits are manufactured in Ontario, Canada.

Medline – The supplier would not disclose manufacturing locations.

Raw materials

Anesthesia masks: liquid medical grade polyvinyl chloride (PVC) material, silicon and Panlite material

Breathing circuits: ethylene vinyl acetate (EVA), polyethylene (PE), polypropylene (PP)

Packaging: plastic and paper

The latest manufacturing insights are available [here](#).

Regulatory and approvals

- [U.S. Food and Drug Administration \(FDA\): Anesthesiology and Therapeutic Devices](#)
- [Occupational Safety and Health Administration \(OSHA\): Anesthetic Gases: Guidelines for Workplace Exposures](#)
- [Centers for Medicare and Medicaid Services \(CMS\): 2023 Measures and Activities for Anesthesiologists and Certified Nurse Anesthetists](#)
- [The Joint Commission: Resuscitation Standards for Hospitals](#)

Non-awarded suppliers

Cardinal

Logistics insights

Transportation/shipping

- AirLife – both direct and distributed
- Ambu – mostly distribution
- ICU – most distributed, but some direct
- Typenex – both direct and distribution business; more direct business

See additional freight update [here](#).

Product storage

- Masks: two to five years depending on supplier
- Circuits: N/A – no expiration date

Utilization insights

Clinical contract support resources

- [National Library of Medicine: Anesthesia Breathing Systems](#)
- [National Library of Medicine: Recommended Practices for Cleaning, Handling, and Processing Anesthesia Equipment](#)
- [ScienceDirect: Anesthesia Mask](#)
- [Anesthesia Patient Safety Foundation: FAQ on Anesthesia Machine Use, Protection, and Decontamination During the COVID-19 Pandemic](#)
- [Anesthesia Patient Safety Foundation: COVID-19 and Anesthesia FAQ](#)
- [Association of periOperative Registered Nurses \(AORN\): How Do Anesthesia Machines Work?](#)
- [American Society of Anesthesiologists: Statement on Practice Recommendations for Pediatric Anesthesia](#)
- [Tufts Medical Center: Masking Technique](#)
- [Tufts Medical Center: Prepare Pediatric Breathing Circuit-Perform Leak Test](#)
- [2022 American Society of Anesthesiologists Practice Guidelines for Management of the Difficult Airway](#)
- [National Library of Medicine: Oropharyngeal](#)
- [National Institutes of Health: Waste Anesthetic Gas](#)
- [American Society of Anesthesiologists: Standards for Basic Anesthetic Monitoring](#)
- [National Library of Medicine: Anesthesia Machine: Checklist, Hazards, Scavenging](#)

Building supply assurance

Conservation strategies

Have higher safety stock with the longer shelf life and work with your local sales teams on suitable substitutions.

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 equally as important to sustain leading practices that will help ensure the availability of essential products post recovery and in the future. For example, some hospitals have reported decreasing their intravenous solution use by as much as 50% in some care areas by continuing to adhere to the conservation strategies implemented during the recent shortages.

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

- 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 anesthesia masks and circuits, or any other category, share your information [here](#). The information you share will be anonymous unless you grant Vizient permission to share.

Supply chain programs

Impact Standardization

Ambu, Medline, Smiths Medical and Vyaire Medical participate in the Impact Specialty Care Standardization Program, which improves procurement processes on commonly purchased products and financially rewards standardization efforts while reducing product variation. Since 1996, members have earned more than \$1.5 billion in cash rebates through the programs. With 12 programs to choose from and built-in flexibility within each program, it's easy to gain additional value beyond price for your organization. For more, information click [here](#).

Planning for disruptions

Distributor recommendations

None at this time

Best practice strategies

All contracted suppliers have “finished goods” language in the contracts for better line of site into the supply chain.

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 around the issue by experts – hospitals, manufacturers, distributors and industry – will be crucial to ultimately arriving at a solution to 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:

- 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 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 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 Centers for Disease Control and Prevention (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. 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.



To learn more, please contact:
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As the nation's largest member-driven health care performance improvement company, Vizient provides solutions and services that empower health care providers to deliver high-value care by aligning cost, quality and market performance. With analytics, advisory services and a robust sourcing portfolio, we help members improve patient outcomes and lower costs.