vizient

CATEGORY RESOURCE GUIDE

Patient monitoring products

Included in this document

(Click to view each section)

Vizient award overview

Awarded suppliers

CE7631 – Draeger
CE7632 – Fukuda Denshi USA
CE7633 – GE Healthcare
CE7634 – Mindray DS USA
CE7635 – Nihon Kohden
CE7636 – Philips Healthcare
CE7637 – Spacelabs Healthcare
CE7638 – Welch Allyn

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.
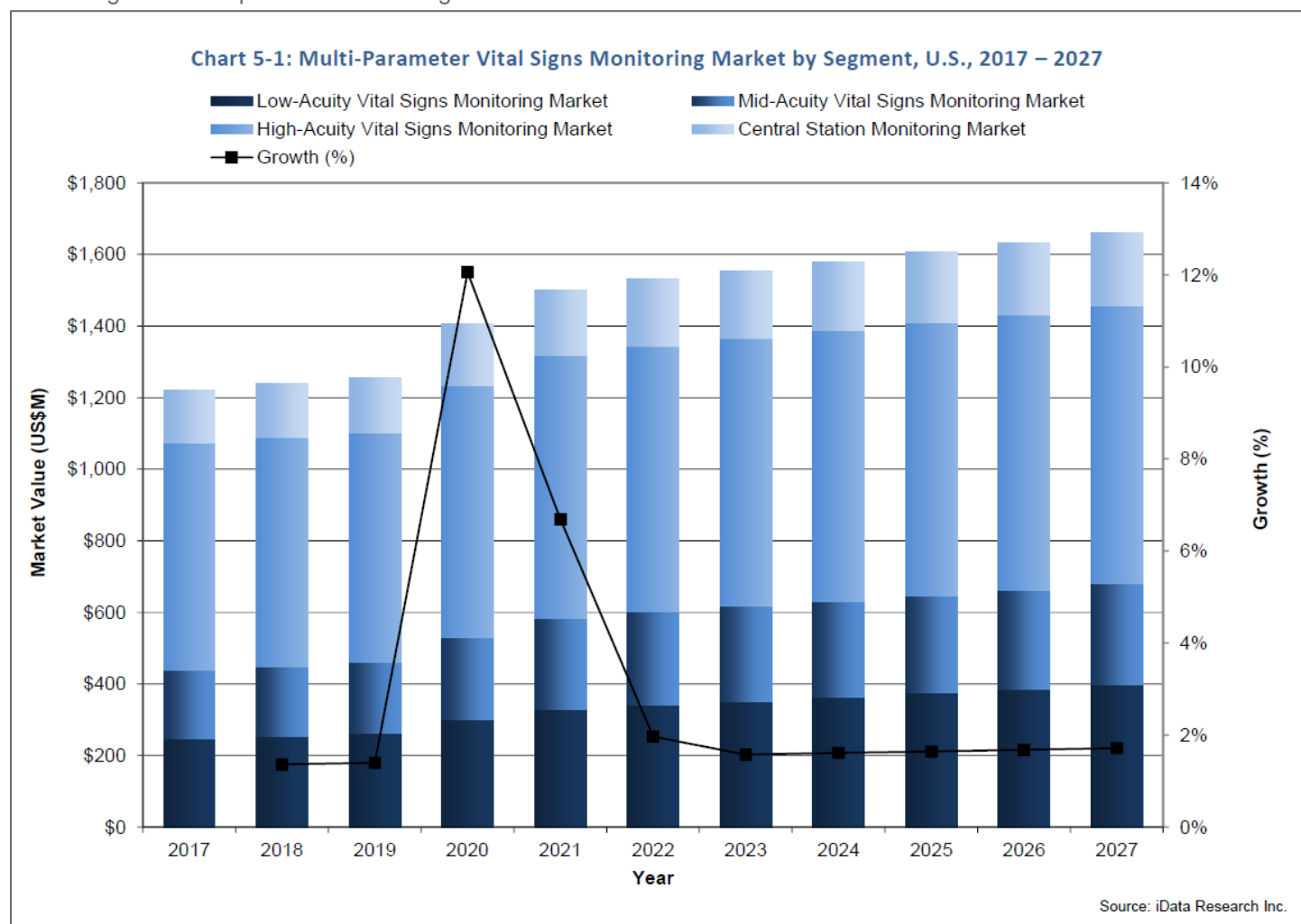

Making supply uncertainty a thing of the past, not the future

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**.

Market landscape

The U.S. patient monitoring equipment market increased 9.2% from $6.8 billion in 2019 to $7.4 billion in 2020, and is predicted to hit $10.8 billion by 2027, according to iData. Medtronic has been a market leader in remote patient monitoring, ICP, cerebral oximetry and pulse oximetry. Competitor Philips Healthcare has led in the multi-parameter vital signs, wireless ambulatory telemetry, remote monitoring, fetal and neonatal, and ECG monitoring markets, while GE Healthcare competes in the multi-parameter vital signs, wireless ambulatory telemetry, fetal and neonatal, ECG monitoring and blood pressure monitoring markets.

Chart 5-1: Multi-Parameter Vital Signs Monitoring Market by Segment, U.S., 2017 – 2027

Source: iData Research Inc.

Find the source here.

Vizient contracted suppliers for patient monitoring:

Supplier name	Type of monitors
Draeger	Acute bedside monitors and vital signs/spot-check monitors
Fukuda Denshi USA Inc.	Acute bedside monitors and vital signs/spot-check monitors
GE Healthcare	Acute bedside monitors and vital signs/spot-check monitors
Mindray North America	Acute bedside monitors and vital signs/spot-check monitors
Nihon Kohden	Acute bedside monitors
Philips	Acute bedside monitors and vital signs/spot-check monitors
Spacelabs	Acute bedside monitors and vital signs/spot-check monitors
Welch Allyn	Vital signs/spot-check monitors

Manufacturing insights

Product overview

A variety of patient monitors are on the market. These key pieces of equipment are scalable and customizable for the ICU to labor and delivery. The Vizient patient monitoring contracts includes acute bedside monitors and vital signs/spot-check monitors. iData lists other possibilities: "multiparameter vital signs monitoring, wireless ambulatory telemetry, intracranial pressure monitoring, electromyogram (EMG) monitoring, electroencephalogram (EEG) monitoring, cerebral oximetry monitoring, fetal and neonatal monitoring, pulse oximetry monitoring, cardiac output monitoring, blood pressure monitoring, electrocardiogram (ECG) monitoring and temperature management monitors." These monitors are classified in categories such as "spot-check monitoring systems, low-acuity monitoring systems, intermediate monitoring systems, high-acuity monitoring systems, telemetry and central stations." The table below lists some examples of products offered by several suppliers within the category.

Patient monitoring products	
Company	**Products**
Draeger	Infinity product line that includes multi-parameter monitoring solutions, including neonatal intensive care unit (NICU): • Infinity Omega and Omega-S monitoring platform • Infinity Acute Care System that integrates with its networked medical-grade workstation • Infinity M540 that can be used as a standalone monitor or integrated with hospital IT
GE Healthcare	• Carescape product family of patient monitors • Corometrics maternal/fetal monitor series
Mindray Medical	• Vital signs monitors: VS-600, VS-900, PM-60 • BeneVision and BeneView high acuity patient monitor product family • Value monitoring solutions: iPM series, iMEC series, uMEC • ePM 10M/12M patient monitors • Accutorr 7 vital signs monitor • Accutorr 3 spot check monitor
Nihon Kohden	• LifeScope product line of bedside monitor • LifeScope PT (BSM-1700) transport monitor • LifeScope SVM-7200 series vital signs monitor • LifeScope G9 bedside monitor solution • Nihon Kohden Central Nursing Stations for patient monitoring and management: CNS-9101, CNS-6201 • Patient telemetry monitoring: WEP-5204/WEP-5208 • ViTrac mobile application • NetKonnect platform to review real-time patient data from any PC in the hospital
Philips	• IntelliVue and SureSigns product family of all acuity level monitors • CareEvent mobile application • Biosensor BX100 • Wearable biosensor • EarlyVue VS30 • Avalon fetal monitor series
Spacelabs Healthcare	• Command modules in various configurations: 91496-A, 91496-B, 91496-C, 91496-I

Patient monitoring products	
Company	**Products**
	• DM4 dual-mode monitor • Qube/Qube Mini portable/transportable modular monitor • Xhibit central station for remote monitoring and alarm management for up to 48 patients (Xhibit XC4 includes all central station capabilities in one computer with touchscreen) • Xprezzon dual screen bedside monitor • Ultraview DM3 dual mode vital signs monitor
Welch Allyn	• Allyn 1500 and Propaq LT patient monitors • Connex spot monitor, vital signs, clinical surveillance system and central station • Spot Vital Signs LXi (factory refurbished), optional • Masimo or Nellcor pulse oximetry • Spot Vital Signs 4400 • Surveyor S4 mobile monitor • Mobile acuity LT central station • Surveyor central system • Vital signs monitor 300 series (factory refurbished), optional Masimo or Nellcor pulse oximetry • Continuous monitoring systems: 1500 monitor (service only), Propaq CS/Encore (service only), Propaq LT monitors for both hospitals and outpatient surgery facilities, Surveyor S12 and S19 patient monitoring systems

Selection factors

There are multiple factors involved in the purchase of patient monitoring equipment such as level of technology, integration ability, standardization, mobility, cost, service, warranties, software support agreements, cybersecurity considerations and true total cost of ownership. Various monitoring systems are stronger in some operations than others, and these factors may weigh more or less heavily, depending on their importance to your facility.

- Lower-acuity settings and remote capacities have helped fuel the push for configurable modular monitors with greater flexibility, according to a DOTmed article analysis. The monitors can "be adapted according to the acuity setting required for patient upsurges," too. Greater demand for more alterations to fit care settings is expected, including the next step: "cloud-based solutions that can enable parameters to be switched on or off as required." In turn, software and add-on modules will be needed to maintain functionality.

OEM and manufacturing location

All suppliers awarded in this category were required to be the original equipment manufacturer (OEM) or demonstrate an exclusive marketing relationship for the products offered.

Raw materials

- Polymers (polyethylene, polyurethanes), glass, plastic, silicone, rubber, metals (aluminum, stainless steel, lead, copper)
- Varying types of semiconductors such as complementary metal oxide conductors and silicon wafer conductors that are also used in this category for the monitors themselves as well as the attachments that go to those monitors

The lastest manufacturing insights are available here.

Regulatory and approvals

All patient monitors must have the appropriate U.S. Food and Drug Administration (FDA) 510k clearance or premarket approval.

Non-awarded suppliers

Analogic, Biolight, Bionet, Carewell, ChoiceMMed, Comen, Criticare Systems, EDAN Diagnostics, Huntleigh Healthcare, Infinium Medical, Ivy Biomedical, Karma Technologies AG, Medifit Instruments, Medtronic, Mennen Medical, Mortara, Penlon, Smiths Medical and Zoe Medical

Logistics insights

Transportation/shipping

Products in this category are shipped based on the needs of the customer and include air, freight, rail and sea. And distribution center locations vary by supplier. Orders for patient monitors are typically direct only, and some attachments, leads, connections and consumables are sold direct and distributed.

See additional freight update here.

Product storage

The average lifespan of a patient monitoring device varies based on several factors such as manufacturer quality, care of equipment over time, regularly performed routine maintenance and usage, as well as how often software updates are being made. It's not uncommon for some monitoring devices to last for 10 to 15 years before needing to be replaced.

Utilization insights

Clinical contract support resources

Strengthening Healthcare delivery with Remote Patient Monitoring in the time of COVID-19 – PMC (nih.gov)

Strategies to Mitigate Healthcare Personnel Staffing Shortages, Centers for Disease Control and Prevention (CDC)

Mitigating and Preventing Medical Device Shortages and Prioritizing Public Health (fda.gov)

Care, Cleaning and Disinfection of Pulse Oximeters and Patient Monitors Devices (who.int)

Enforcement Policy for Non-Invasive Remote Monitoring Devices Used to Support Patient Monitoring During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency (Revised), (FDA)

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 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 IV solution use by as much as 50% in some care areas by continuing to adhere to the conservation strategies implemented during the recent shortages.

Additionally, with other products and services:

- 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 patient monitoring, 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

Fukuda Denshi USA is a Vizient diversity supplier. Vizient's Supplier Diversity Program supports the development of minority-, woman-, disability-, LGBT- and veteran-owned business enterprises that meet high-quality standards. We also strive to work with suppliers who proactively seek strategic partnerships with diverse companies. For more information, click here.

Planning for disruptions

Distributor recommendations

None

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.

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 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

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.