

A photograph of a medical MRI machine in a clinical setting. The machine is a large, horizontal cylinder with a blue cushioned table extending from its front. The room has white walls, a grid ceiling with recessed lights, and a control panel on the wall. The text is overlaid on the left side of the image.

# Medical Device Shipping: Navigating Supply Chain Challenges to Meet Patient Needs

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# Introduction

## Home-based care is on the rise

An increasing number of healthcare organizations—including hospitals, long-term care and outpatient facilities—are introducing direct-to-patient (DtP), otherwise known as home-based care. This move brings primary, acute and palliative care directly to the patient's home.

This new approach helps patients by relieving the undue stress of getting to a care facility, which can be a challenge, especially for frail and vulnerable patients. There are also healthcare system-wide benefits that the direct-to-patient approach brings. In a [recent study](#), home-based primary care proved to reduce emergency department visits, hospitalizations and 30-day readmissions for homebound patients.

The shift to caring for patients at home is a giant step forward, but it comes with its challenges. Without the comfort of working in a fully staffed and supplied hospital, healthcare providers must rely on supply chain operations when ordering and receiving the medical devices their patients depend on. The range of medical equipment

available for use in home-based environments spans from first aid kits and personal protective equipment (PPE), to more complex devices, such as ECG units and specialised monitoring devices.

In this whitepaper, we'll dive deeper into direct-to-patient shipping needs and present strategies and considerations for ensuring medical devices reach patients receiving care at home.

### What we'll cover:

- ✓ What are direct-to-patient logistics
- ✓ Challenges and best practices of medical device shipping
- ✓ The building blocks of a resilient supply chain
- ✓ Regulatory import and shipping requirements in North America
- ✓ Benefits of an all-in-one shipping partner





What are  
direct-to-patient logistics?



## What are direct-to-patient logistics?

DtP logistics is an integrated supply chain system that enables patients to receive treatment in their own home or place of work. There are less acute home-based care services, such as helping elderly people conduct their daily activities like dressing, bathing and toileting. For patients that need more acute care, DtP care can mean diagnostics, monitoring and treatment for illnesses like cancer and diabetes. DtP also includes patient sample collection and unused drug/supply return.



The home healthcare market is predicted to expand at a rate of 10.5% in North America, according to a [recent study](#) by TMR.

### Examples of home-based medical supplies

Basic	Advanced
<ul style="list-style-type: none"><li>• Aluminum finger splints</li><li>• Eyewash solution</li><li>• Hydrogen peroxide</li><li>• Instant cold packs</li><li>• Petroleum jelly or another lubricant</li><li>• Sterile saline</li><li>• Syringe, medicine cup or spoon</li><li>• Thermometer</li></ul>	<ul style="list-style-type: none"><li>• Blood glucose monitors</li><li>• Heart rate monitors</li><li>• Temperature monitors</li><li>• Sleep apnea monitors</li><li>• Pulse oximeters</li><li>• Pedometers</li><li>• IV equipment</li><li>• Dialysis equipment</li></ul>





A man in a dark blue long-sleeved shirt and dark cargo pants is wearing a bright orange safety vest with reflective yellow and silver stripes. He is holding a handheld barcode scanner in his right hand and is looking down at it. He is standing next to a large wooden crate made of light-colored wood. The background is a warehouse with metal shelving and equipment. The lighting is somewhat dim, with some highlights on the worker's vest and the crate.

# Challenges and best practices of medical device shipping



# Challenges and best practices of medical device shipping

The DtP care model presents pivotal opportunities to improve patient care and comfort, but there are significant risks and challenges. Let's take a closer look at important considerations and best practices when shipping DtP medical devices:



## Fragile medical equipment

While some might assume that nothing can be done to prevent damage and loss to occur when shipping medical devices, the opposite is true. Here are some solutions your shipping partner can provide:

- **Urgent shipments for surgeries.** When lost or delayed shipments aren't an option, find a shipping provider that offers time-sensitive solutions. Delivery route optimization, next flight out, constant tracking and contingency plans are all part of Purolator's [Mission Critical](#) services to ensure delivery peace of mind.
- **Proper packaging.** While [regular packing standards](#) are suitable for shipping most direct-to-patient devices, some oversized or expensive equipment need custom-built crates or extra cushioning. It's also important to consider the impacts of shipping by air, ocean or ground. Although ocean and ground are generally more cost effective, they can require a greater level of packaging care to prevent damage.



## Temperature-sensitive logistics

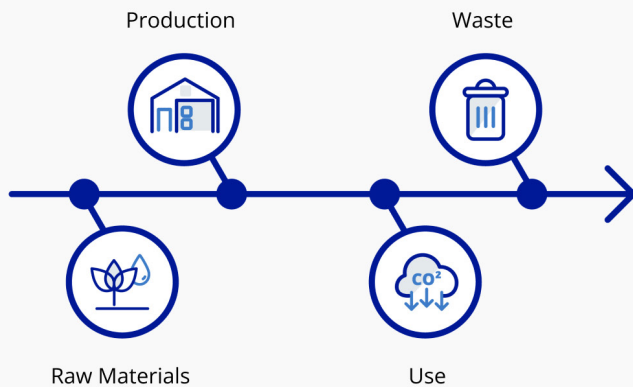
Biological samples from clinical trials and many classes of medications are sensitive to changes in temperature, humidity and other conditions.

If you're [shipping biological substances](#) or goods that must maintain a specific temperature range, you'll want to check ahead of time to ensure your shipping partner offers the services you need:

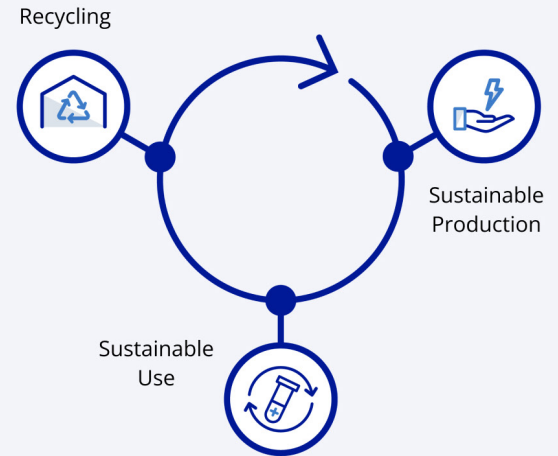
- **Temperature-controlled packaging and logistics.** To keep those items at the manufacturer's prescribed temperature, they require special handling and storage during transport from shipper to recipient.



## Linear Economy



## Circular Economy



# Transitioning high-value medical care to the circular economy

Reducing single-use plastics and moving towards a planet-friendly [circular economy](#) is a necessary step in [reducing the healthcare industry's carbon footprint](#).

The barriers to a clean transition are significant: patient perception of reusable devices, the risk of infections and the lack of clear mandates around regulating the healthcare industry. However, a transition to a healthier environment begins with healthcare professionals being mindful of resource consumption choices.

## Here are some eco-friendly opportunities to consider in your practice:

- ✓ Look for ways to slow or close material and energy loops. For example, reusable surgical gowns are typically FDA approved for [75 reuse cycles](#).
- ✓ Recycle materials where reuse or reprocessing is not possible, such as packaging.
- ✓ Adopt procurement policies that favour reusable devices over single-use disposables that require life cycle assessments.
- ✓ Some devices like surgical forceps and endoscopes can be disinfected, sterilised and reprocessed. Look for opportunities to safely reuse your medical devices, but remember to keep an eye on sterilisation.





## Ready to work towards your sustainability goals and reduce your carbon footprint?

Learn more about [adapting your supply chain toward a circular economy](#).





## Shipping biological substances

Whether you're taking blood samples, disposing of waste or performing other medical treatments that involve human materials, you'll need to understand and follow biological shipping requirements.

- **Shipping blood samples.** When shipping blood samples back to medical testing labs or other facilities, it's important for the shipper to properly classify and declare the shipments, as set out in regulation [UN3373 Biological Substances, Category B](#).
- **Shipping nitrogen and frozen shipments.** When shipping items that require cold environments like dry ice or liquid nitrogen, the shipper must follow all regulations as set out in [UN3373 category](#), and ensure compliance with current IATA and ICAO regulations.

### Preparing for unexpected supply chain delays

In the past few years, the fragility of the global supply chain has never been more apparent. Pandemics, international conflicts and climate change are all examples of unexpected events that created a ripple effect through supply chains around the globe. COVID-19, the blocking of the Suez Canal, the ongoing shipping container shortage and increasingly disruptive climate events have shown us how interconnected our global trade systems are—and how quickly the whole chain can break down.



#### Have biological shipping needs?

Avoid compliance delays and follow the proper [regulations and packaging requirements](#).





## Learnings from the pandemic

The spread of COVID-19 and subsequent shutdowns of industries around the world disrupted supply chains, and impacts were felt all over the world.

**As COVID-19 spread across Asia, many businesses had to bring their sourcing, logistics and manufacturing operations to a standstill.**

In China, power shortages limited production, while in the U.S. and the U.K., a shortage of truck drivers meant deliveries were not made on time. This caused business costs and prices to rise. Additional supply chain issues ranged from electronics and auto shortages to difficulties in the supplies of meat, medicines and household products. At the same time, PPE and medical equipment bottlenecks sent shocks and supply chain slowdowns across a variety of sectors.

In a [recent study](#) by McKinsey and Company, 93% of senior supply chain executives from across industries and geographies said they intended to make their supply chains far more flexible, agile and resilient after feeling the detrimental impacts from the pandemic.

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Here are some strategies employed by companies during the pandemic:

- Increasing inventory of critical products
- Dual sourcing of raw materials
- Increasing inventory along the supply chain
- Regionalizing the supply chain
- Nearshoring and increasing supplier base

In order to predict, react to and mitigate the effects of these events, logistics stakeholders must be aware of their unique “exposure, vulnerabilities and potential losses” in a multitude of scenarios.







Building resiliency  
into your supply chain:  
Helpful strategies



# Building resiliency into your supply chain: Helpful strategies

A [nimble supply chain](#) is critical to ensure you are prepared for unexpected events like pandemics, wars and climate change. As unexpected events can occur at any moment and disrupt the healthcare system, there are ways to safeguard your DtP logistics for safe and reliable medical device shipping.

As a healthcare provider prescribing home treatment plans, there are best practices and strategies you can implement to drastically mitigate your medical device supply chain risk.



## Loss prevention

- **Shipping insurance.** Obtain insurance on highly valuable medical devices and mitigate the risk of unforeseen accidents.
- **Shipment tracking.** Keep track of your shipments at every stage of the journey. Look for a shipping provider who offers mobile apps or [SMS notification](#) capabilities.



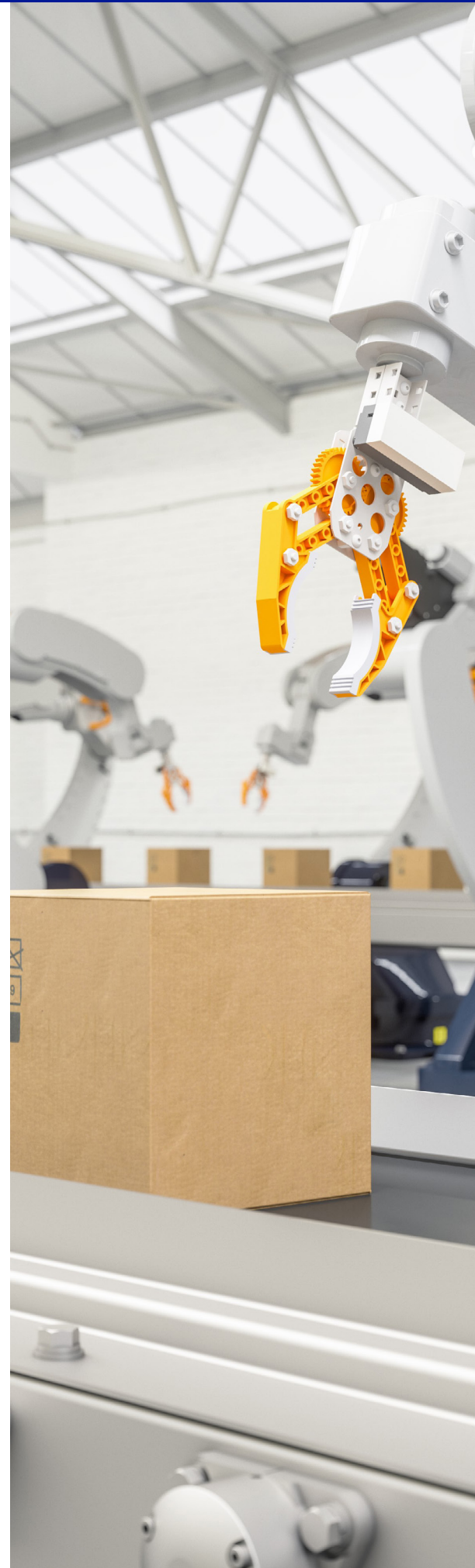
## Avoid shortages

- **Nearshoring.** This strategy involves moving business operations to a nearby country, rather than depending on global supply chains.
- **Diversify your suppliers.** While sole sourcing can provide a competitive edge, when supply is disrupted, these advantages can quickly dissipate.
- **Identify back-up suppliers.** Building relationships with suppliers in other geographic locations is a smart way to avoid delays if unexpected emergencies arise.



## Partner with an expert

- **Do your research.** Few express couriers specialise in shipping healthcare devices or [pharmaceuticals](#). Make sure you select a partner with proven experience in medical logistics.
- **Find the expertise you need.** If you are transporting goods across borders, partner with a shipper that can provide [cross-border expertise](#).







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During the pandemic, 60% of healthcare players regionalized their supply chains and 33% moved production closer to end markets.”

McKinsey & Company





**USA  
SOUTHBOUND**



Common regulatory  
requirements for  
shipping medical devices



# Common regulatory requirements for shipping medical devices

Now that you understand the main risk factors and strategies for overcoming potential supply chain hurdles, the next step is to understand the [regulatory compliance](#) landscape in the U.S. and Canada, as they have the potential to impact your shipping strategy.

## Navigating North American regulations

Both Canada and the United States regulate the medical device industry heavily. They monitor and evaluate the safety, efficacy and quality of diagnostic and therapeutic medical devices.

### Canada



In Canada, medical device imports must meet Health Canada requirements as specified in the Food and Drugs Act and the Medical Devices Regulations.

[Learn more](#)

### United States



In the U.S., the Food and Drug Administration (FDA) handles regulations related to shipping medical devices.

[Learn more](#)



### Did you know you can get duty drawback returns?

If goods are returned and you already paid taxes on them, you may be entitled to a refund. Each year, millions of dollars go unclaimed. [File the correct documentation](#) and collect your return.



## Preparations required for customs clearance

Your patients are depending on you to provide proper and complete care at home. That means shipment and border delays are out of the question. By partnering with a shipping partner who understands the ins and outs of prescription shipping regulations and the complexities of cross-border shipping, you can focus on your patients.

Whether you or your shipping provider are preparing your Canada, U.S. and international medical device shipments, the following four steps are essential to a seamless cross-border delivery.

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### If you're shipping across borders, you'll need:

1. Pre-filed, complete documentation
2. Correctly assigned tariff classification
3. All duties and taxes paid
4. Knowledge and application of any eligible free trade benefits





## Where you need us, when you need us

Purolator's time-definite shipping solutions ensure consistency and reliability using Canada's extensive shipping and logistics network. When it comes to home-based care, your focus should be dedicated entirely to your patients, not your logistics. Here are some of the services and expertise we offer for enhanced DtP shipping needs.

- ✓ **Regulation know-how.** We have experienced compliance experts to help get your medical devices across the border without delay.
- ✓ **Mission Critical.** When you require a [fast shipping service](#), dedicated help will be available and ready to help you any time of the day, throughout the year.
- ✓ **Time-definite delivery.** We offer scheduled delivery for DtP home-based care.
- ✓ **Full visibility.** Our clients get full visibility with real-time access to shipment information and delivery tracking.
- ✓ **A single-source logistics.** When you need a comprehensive partner that has multiple flexible shipping and delivery capabilities, we have you covered. Our services span across storage, handling, inventory control, serial number and lot tracking, reverse logistics and more.
- ✓ **Special handling.** Need special handling for expensive, fragile equipment? We offer special handling so your equipment is intact and ready for you and your patients.





[See full success story](#)



## Success Story: Switch Health delivers 1 million test kits with fastest shipping solution

Switch Health, a health consultancy company, needed a way to rapidly deliver at-home COVID-19 test kits across Canada, including remote communities and communities in hard-to-reach regions. By combining Purolator's extensive standard shipping network, plus Mission Critical, a service that could complete pickups in even the most isolated regions in Canada, Switch Health was able to reach 100% of their patients across Canada and deliver a seamless patient experience.

“

Purolator was able to instill confidence that it had logistics insights that no other multinational company would have. Those almost esoteric insights about the local Canadian market made Purolator an obvious choice for us to take on board.”

Marc Thomson, Switch Health Co-founder





Choosing a shipping partner  
with the right expertise



## Choosing a shipping partner with the right expertise

Your logistics partner is more than just an express courier. They become an extension of your care team. To ensure every shipment meets streamlined customs processes and arrives on time, choose a shipping partner with a proven track record in on-time performance, and one that has customs clearance expertise.

At Purolator, we understand the intricacies of the patient and physician relationship. We'll take care of your deliveries, so you can take care of your patients.

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### Our shipping solutions:

- ✓ Courier service (ground and express)
- ✓ Freight/LTL services
- ✓ International, intra-Canada and cross border
- ✓ Final-mile transit communication
- ✓ Cross-border expertise
- ✓ Global inbound support





## Medical shipping you can count on

When it comes to home-based care, your shipping partner is an extension of your team. It's important to choose a reliable and experienced partner that understands the complexities of direct-to-patient care.

Whether you're getting life-saving medical equipment to your patient's home or shipping time-sensitive prescription drugs over the border, we're here to get your shipments when you need them, where you need them.



### **Meet on-demand surgeries.**

With our speedy and reliable deliveries, we can reach most hospitals across Canada before 9AM/10:30AM with express service.



### **Get the equipment you need, from anywhere.**

Our cross-border expertise in Canada and the U.S. allows us to ship life-saving equipment quickly by freight, courier and air shipping solutions.



### **Closed-loop network.**

Shipments rarely leave the Purolator network, which means fewer handoffs and touches and a reduced risk of damage/theft. In addition, companies can be assured of consistency of service, every time.



### **Flexible medical facility deliveries.**

Purolator offers inside deliveries to regional clinics and surgical centres, including maintenance visits.

## When things don't go to plan, we still have a plan

With our [Mission Critical solutions](#), you'll enjoy multispeed solutions with contingency planning and unique off-network support. You'll also enjoy support from the most experienced and dedicated Canadian team specialists and 24/7 customer service and operations.





Prepare your direct-to-patient supply chain. Explore our medical device shipping solutions today.

[View shipping solutions](#)