nmdp BioTherapies℠
FIND CURES. SAVE LIVES.

HOW TO OVERCOME 3 COMMON CELL THERAPY SUPPLY CHAIN DISRUPTIONS

The successful on-time delivery of cell and gene therapies isn't just good business—it's a matter of survival for patients. When there's no room for mistakes, you need an advanced approach to overcome barriers to on-time delivery.

In our more than 30 years of experience managing the collection and delivery for time-sensitive cell therapies around the globe, we've found three of the most prevalent barriers to the successful shipment of cell and gene therapies are:

- **Severe weather**
- **Customs complexities**
- **Flight delays and cancellations**

These disruptions are unavoidable. But you can take steps to mitigate your risk and variability within the supply chain despite disruptions.

1 Severe Weather

The risk of inclement weather is a constant concern when developing delivery plans. This is especially true when managing shipments across vast distances where diverse geography creates a large amount of regional weather variability.

Developing relationships with emergency preparedness teams at all levels of government is critical. Connections to government agencies, access to chartered forms of transport and a robust business continuity team are also worth considering when designing your custom logistics solution.

Case example from the field:

It was collection day for a Connecticut-based blood stem cell donor. Unfortunately, the donor was also snowed-in, due to an epic nor'easter that had dumped a whole season's worth of snow on the region during a single storm. There was no hope of the donor making it out on the road in order to drive to the collection site.

Our Logistics team contacted Connecticut State Patrol. Shortly thereafter a snowmobile was outside the donor's house, ready to deliver the courier to the distant cleared road and on the way to the collection site. The donation was completed successfully, despite the snow.

2 Customs Complexities

The complexity of customs and border laws for the clearance of cellular cargo is another risk to timely delivery. Specialized knowledge around international transport and continual relationship-building with government agencies is key when designing your logistics solution.

To solve for delays at borders, relationships with U.S. Customs and Border Protection, the Food and Drug Administration, and the Transportation Security Administration are essential for re-routing or expediting shipments.

Case example from the field:

We have products that go in and out of Israel, and sometimes military conflicts occurring nearby result in airport closures. We had a shipment going out of Israel delayed due to this type of closure, and it was fresh product that needed to be back to the United States within 48 hours.

To avoid too much cell loss, the product needed to be cryopreserved, yet doing so required a dry shipper. We contacted partners in Germany with access to a charged liquid nitrogen dry shipper, and the dry shipper was delivered.

Our final hurdle? It was also the Sabbath, with Israeli customs closed. We contacted partners at the U.S. State Department who then worked with Israeli customs to help us release the product, despite the closure. We got on the plane, and the product was delivered.

> **A lot of what we do isn't just systems-based, it's also relationship-based. We've been doing this for a long time. The only way we can be as successful as we are is by leveraging the relationships that we maintain across the country and across the world."**
>
> **RAY HORNUNG, MBA, CEM, CBCP**
> Manager, Logistics and Emergency Preparedness Team
> NMDP BioTherapies℠ and NMDP℠

3 Flight Delays and Cancellations

Whether flight postponements are due to severe weather, national emergencies or airline strikes, the ability to re-route and deliver despite delays is essential. Connections with international couriers and a robust notification system will help you develop contingency plans when flights are grounded or canceled.

A Business Continuity department or an Emergency Preparedness team can also assist with gathering the resources required to deliver during emergencies.

Case example from the field:

While Hurricane Harvey was bearing down on the Texas coast, we had a hospitalized patient in Houston waiting for the arrival of their fresh therapy from an international collection site. All flights going in and out of Houston were grounded, and the patient could not be moved.

An onboard courier was flown to one city, then re-routed to another. Meanwhile, we leveraged our relationships in the emergency management community to contact the State Emergency Operations Center. We were given the green light and a route to drive towards the hospital (and hurricane) through Texas State Patrol checkpoints.

While both sides of the interstate were full of cars fleeing the impending storm, we were able to deliver while the therapy was still viable. The therapy was successfully transfused.

> **When we start mapping those supply chains, it's not necessarily 'What's the shortest route?' It's 'What's the shortest route that gives you the greatest sense of certainty that you can deliver?'"**
>
> RAY HORNUNG

Experience Matters

Risk is inherent to the world of cell and gene therapy logistics. Anticipating common setbacks and actively planning for their solution requires a specialized and collaborative approach.

NMDP BioTherapies[SM] has the experience, expertise and extensive relationships required for the successful transport and delivery of cell and gene therapies.

Whether you look to us for designing customized supply chains or for implementing a tailored logistics solution, our results-driven approach guides us to exercise urgency and excellence in everything we do.

CONNECT WITH OUR TEAM

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> **A patient may not get another opportunity. This may be their only chance to get that life-saving therapy, so we have an obligation to do everything we can to make sure that happens."**
>
> RAY HORNUNG