

## Minnesota's Booming Medical Sector Relies on Airports

Minnesota's medical industry is increasingly relying on airports to ship everything from biologic specimens to high-tech surgical implants.

"The value of those medical goods is among the most valuable in the state," says Travis Fried, former TPEC researcher and a 2018 graduate of the Humphrey School of Public Affairs. "It makes sense that they're going by airplane."

Fried's work on this topic was guided by TPEC director Lee Munnich and researcher Tom Horan, the lead investigators for the study. "This research on Minnesota's highly competitive health care and medical device industry clusters demonstrates the importance of air transportation in the movement of high-value, time-sensitive freight for medical supply chains," Munnich says. "This in turn helps us understand the importance of Minnesota's transportation network to this vital part of Minnesota's economy."

Medical goods represent the highest value-per-ton commodity in the state, Fried says. In 2015, pharmaceuticals and precision medical instruments accounted for \$52.5 billion in traded goods in Minnesota. Together with electronics, these low-volume/high-value commodities made up over 70 percent of the freight-value moved by state airports.

"Air cargo handles about 3 percent of the volume of merchandise globally but 36 percent of the total value," Fried adds. MSP handles \$8.6 billion annually in medical goods—92 percent of the state's total.

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Minnesota is a hub for medical device company headquarters, and Mayo Clinic is one of the most renowned health care facilities in the world. Mayo's Destination Medical Center expansion—a 20-year, multi-billion-dollar development project backed by state funding—underscores the importance of this crucial supply chain.

Hospitals and medical device companies are turning to air travel for their shipping needs for several reasons. Speed is the main advantage. Ordering products as-needed with state-of-the-art "just-in-time" delivery networks reduces the steep cost of maintaining on-the-shelf inventory. Using this approach, Mayo Clinic worked with FedEx, its primary shipping partner, to shrink its inventory by 75 percent, reducing supply chain costs 25 percent, Fried says.

Every year, 4 to 12 percent of all inbound flights to Rochester International Airport are diverted to Minneapolis–Saint Paul (MSP) International Airport because of the weather. These delays cost shippers \$633,000 each year and result in \$5 million in regional economic loss from diverted flights. And biologic specimens going to Mayo Medical Labs—more than 35,000 of them, five days a week—can spoil.

State transportation officials are looking at how they can improve the state's freight systems, including upgrading the instrument landing system at the Rochester airport to help planes land during inclement conditions. "Simple investments that improve resiliency at airport cargo operations are beneficial to the Minnesota medical economy," says John Reed, executive director of Rochester International Airport.

The TPEC team created an interactive story map that walks users through the study and its findings. The map is available on the TPEC website.

In continuing work, TPEC researchers are partnering with the Medical Alley Association, a health technology trade association based in Golden Valley, Minnesota. "Medical Alley can provide valuable insight about the medical device industry in Minnesota and a better understanding of links to Greater Minnesota," Munnich says. Researchers hope to gain guidance and support in obtaining the data required to analyze the impacts of the medical device industry on businesses and industries across Minnesota.

### LEARN MORE:

Story Map: Global Airfreight Networks and Regional Competitiveness

*Global Airfreight Networks and Regional Competitiveness: Modeling Value in Minnesota's Evolving Medical Supply Chain* (2018, Travis Fried, Lee Munnich, Tom Horan)

### FOR MORE INFORMATION AND ADDITIONAL ANALYSES

TPEC welcomes public engagement and encourages you to contact us with your questions, comments, and research needs.

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TPEC is a program of the State and Local Policy Program at the Humphrey School of Public Affairs and of the Center for Transportation Studies.

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