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Business

Wall Street Discovers a Hot New Investment: Cold Storage for Vaccines

Smaller companies that are key to the cold storage and distribution of Covid-19 vaccines are seeing a flurry of new investments.

By KATE KELLY

The situation was dire. As the pandemic raged in March, some Covid-19 patients in Milan were going into septic shock and their blood pressure was perilously low.

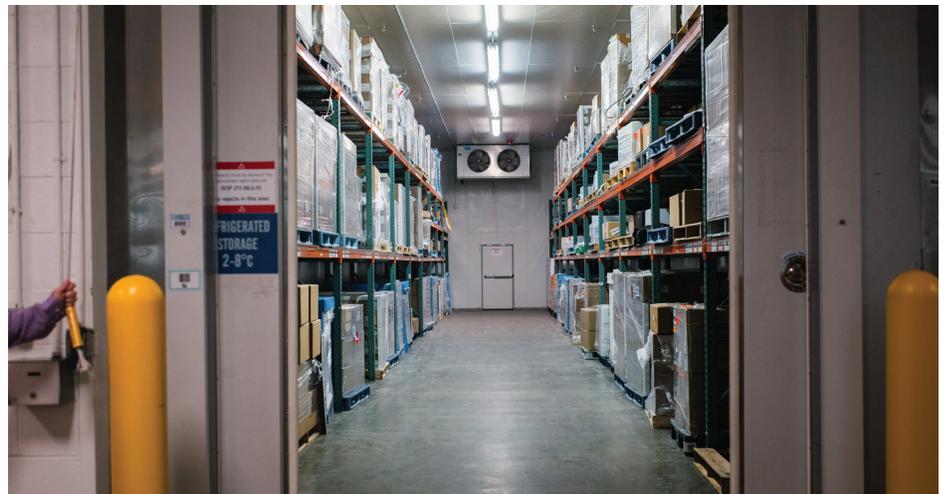
A California drug company wanted to ship emergency medication to those patients, but commercial flights to Italy had been drastically scaled back. So it called PCI Pharma Services, a Philadelphia company that specializes in packaging and shipping drugs around the world. It took nearly a week, but PCI secured permits and arranged for courier jets, drivers and trains to deliver the drugs to Milan.

"That day when the drug arrived, six people were saved," said Salim Haffar, PCI's chief executive.

As countries prepare to distribute hundreds of millions of Covid-19 vaccines — some of which require storage as cold as the South Pole in winter and meticulous handling — the highly specialized operations of companies like PCI Pharma are in heavy demand. And Wall Street, which likes nothing better than a hot trade with the potential for big profits, is rushing to grab a piece of the action.

Investors were already snapping up shares of vaccine makers like Moderna and Pfizer, whose vaccine, developed with BioNTech, was introduced in the United States on Monday and requires an exceptionally low storage temperature of negative 70 Celsius. FedEx and UPS, whose shares have already risen this year as the pandemic forced millions to rely on online shopping, could benefit further from their roles in vaccine delivery.

But in recent months, private equity firms and wealthy individual investors have also been seizing on smaller companies like PCI Pharma, whose cold-storage opera-



PHOTOGRAPHS BY HANNAH YOON FOR THE NEW YORK TIMES

PCI Pharma Services in Philadelphia is among the specialty shipping and storage companies drawing interest from investors.

tions will play a crucial role in delivering Covid vaccines to the public.

Until recently, the temperature-controlled storage and shipping of pharmaceutical products, known as the "cold chain," was a relatively sleepy corner of the health care industry. The technology to preserve animal-based cells and tissues by transporting them in cold conditions has been available since the 1950s, and certain breakthroughs in cancer research in the last decade increased demand for cold-chain transportation.

But the virus, and the temperature-sensitive vaccines that are poised to combat it, have brought new attention to the cold-chain delivery systems in the United States and beyond. Even "Saturday Night Live" featured a cooler full of vaccines during a recent episode.

The companies getting attention from Wall Street are notable for how niche their operations are. Many use an elaborate net-



PCI Pharma Services in Philadelphia is among the specialty shipping and storage companies drawing intense interest from investors.

work of freezers and specialized trucks and aircraft to move temperature-sensitive materials — such as blood, stem cells and tissue — around the world without compromising their efficacy. It's a delicate process, because a product can go from vital to useless within minutes of being removed from cold storage.



PHOTOGRAPHS BY HANNAH YOON FOR THE NEW YORK TIMES

Working with controlled substances at PCI Pharma, above, which packages and ships drugs around the world.

Potential investors are constantly calling Stirling Ultracold, whose freezer equipment is powering UPS's "freezer farms" in Louisville, Ky., and the Netherlands, where vaccines will be stored. "There's not a day that goes by" that an inquiry doesn't come in, said Dusty Tenney, Stirling's chief executive, who is running his Athens, Ohio, production lines around the clock.

Demand for Stirling's freezer engines — the core component of their upright, under-the-counter and portable freezers — has soared, and the estimated waiting time for new orders is six to eight weeks, the company said. On Dec. 8, after multiple prospective investors studied the company's financial metrics in a due diligence process, Stirling received a capital injection of an undisclosed amount that it plans to use to buy new equipment and expand production.

In October, Blackstone, the private equity giant, invested \$275 million in Cryoport, a Nashville company that specializes in shipping sensitive medical materials at freezing temperatures. Investors have also been bullish on Ember, the beverage-heating company that has developed a refrigerated medical shipping box with built-in GPS and already counts two Jonas Brothers and the Brooklyn Nets forward Kevin Durant as shareholders.

PCI Pharma recently changed ownership. The new investors, the private-equity firm Kohlberg & Company and the Abu Dhabi sovereign-wealth fund Mubadala Investment Company, viewed the company's expertise in transporting pharmaceuticals globally during the pandemic as a potential benefit.

Cold-chain investors said they were drawn to the area well before the pandemic because of the boom in biologic drugs, which require blood, tissue and other vital materials to be transported at low temperatures. For now, though, the rush to develop and distribute Covid-19 vaccines has amped up investors' enthusiasm.

In addition to Pfizer and Moderna, Astra-Zeneca, Johnson & Johnson and others are



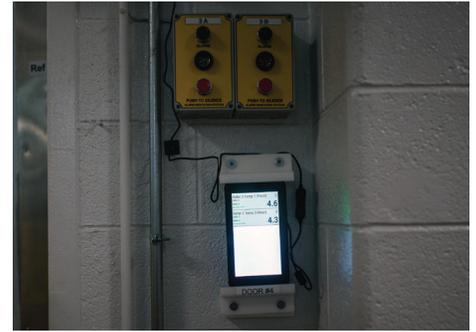
Salim Haffar, PCI's chief executive.

also developing vaccines that will require cold storage. Therefore, cold-chain infrastructure, which can be limited in rural or far-flung areas like southeastern Indiana and Hawaii, will be essential.

Shares of Cryoport, which ships biologic material at cryogenic temperatures — a level of freezing, usually around negative 150 Celsius, at which cells and other living materials enter a quiescent state — are up more than 180 percent this year. Already, the company has transported temperature-sensitive materials involved in 26 different Covid vaccines and treatments and has a long-term partnership with McKesson, a distributor of medical supplies that has been tapped by the U.S. government to manage domestic vaccine distribution.

Jerrell Shelton, Cryoport's chief executive, said he expected the company to be involved in the global distribution of the vaccine, but the details had not yet been determined. "This is a massive, massive effort, and it's going to strain the temperature control supply chain throughout the world," he said.

Ram M. Jagannath, a senior managing director at Blackstone who oversees the firm's investment in Cryoport, said that the cell and gene-based therapies market where the company operates is likely to grow at an annualized rate of 50 percent for the next five years. "The current pandemic has only served to increase interest and investment in these potentially lifesaving therapies," Mr. Jagannath said. "We invested in this for the long run."



A temperature reader outside a storage room at PCI Pharma Services.



A machine assembles a box used to hold vaccine vials.

Then there are companies like Ember, which is hoping to parlay its temperature-control technology — currently used in a smart mug that keeps beverages at the user's preferred drinking temperature — into a shipping container for the Covid vaccine. Several years ago, Ember built a portable refrigerator for Mayo Clinic physicians trying to deliver vaccines to places where dry ice and cooling facilities were scarce.

"We tested it, and we got huge positive feedback," said Clay Alexander, Ember's chief executive. That led to the creation of Ember's cold box, which can ship medical products at standard refrigeration temperatures and generate its own electronic return labels on arrival — a product they plan to take wider next year through a commercial partnership they signed recently. Investors in Ember are hoping that the technology will also come in handy as delivery of Covid vaccines becomes more widespread.

Much of the cold-chain infrastructure for pharmaceuticals was already in place in 2014, when the veteran health care investor Matthew J. Jennings attended a gathering of the cold-chain industry's trade association in Chicago. "I was surprised at the size of the industry and the number of exhibitors searching for growth," said Mr. Jennings, an operating partner at Kohlberg who is now chairman of PCI Pharma. Growth, he said, has accelerated since then, "and will likely benefit again as a result of Covid."

On Nov. 20, a shipment of a Covid vaccine — PCI Pharma's Mr. Haffar wouldn't

say which one — arrived at the company's headquarters as part of a dry run, escorted by armed U.S. Marshals.

The vials containing the vaccine were stored in a PCI refrigerator set between 2 and 8 degrees Celsius and monitored constantly. Once ready for packaging, the vials were removed from storage and brought to a machine where they were labeled and boxed before being returned to cold storage.

Mr. Haffar gave a tour recently of the company's Philadelphia building. Inside a walk-in cooler and wearing a long-sleeved gown and hairnet, he motioned to the surrounding shelves. They contained rows and rows of products that PCI packages, including drugs that treat Crohn's disease and syringes that inject medicines directly into the eye.

The cold chain has been around forever,

he said. "The vaccine just made the sheer size of it bigger."

Kate Kelly is a business reporter, covering big banks, trading and lending, and the crucial players setting financial policy in both politics and business. She is also the author, with Robin Pogrebin, of "The Education of Brett Kavanaugh: An Investigation." @katekelly