

The background is a dark blue gradient. On the left side, there is a faint, large-scale fingerprint pattern. Scattered across the page are several hexagonal shapes: a single white outline hexagon at the top center, a cluster of white outline hexagons on the right side, and three solid blue hexagons at the bottom (one medium, one small, and one very small).

Six White Horses

*The key drivers of change in today's
healthcare supply chains*

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Riding six white horses, change has come to healthcare.

On October 27-28, 2022, UPS Healthcare invited more than 120 industry leaders and trailblazers to a thought leadership forum in Nashville, Tennessee.

The forum's world-class speakers, panels, and presentations identified and analyzed six powerful trends – Six White Horses – now driving fundamental shifts in healthcare ... and influencing healthcare's inseparable partner, healthcare logistics.

This white paper presents and briefly analyzes these post-pandemic global trends and outlines innovative ways that visionary healthcare companies are today reimagining opportunities and operations to deliver better patient outcomes, reduce costs/complexity, and grow market share.

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Shorter clinical trial approval times

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ONE

Shorter clinical trial approval times

In the United States, the Food and Drug Administration (FDA) has become more flexible, accelerating reviews and speeding drug development.

An example is the FDA's Accelerated Approval Program, fast-tracking drugs used to treat gravely serious diseases or drugs so new they can fill a previously unmet medical need.

Healthcare logistics companies must have pre-structured, dependable, and adaptable processes ready to go.

Clinical studies can now be decentralized or even virtual. Direct-to-patient deliveries and home nursing visits during trials and for other medical purposes have been approved in more than 60 countries.

As well, a new generation of digital tools, telehealth services, and artificial intelligence (AI) now plays a role in clinical studies, reducing trial-phase times.

The push for rapid clinical trial and new drug development/review is global, with accelerated programs appearing in recent years in several nations. In Japan, drugs even make it through regulatory channels and go to market at faster speeds than in the U.S.



Shorter approval cycles have a direct impact on healthcare supply chains.

As faster trial stages and review times compress, healthcare logistics companies must have pre-structured, dependable, and adaptable processes ready to go. A patient needing a cancer drug or vaccine just hitting the market can't wait for weeks while a developer's logistics partner designs and outfits a new supply chain to handle the drug. Logistics partners must rapidly adapt and flex supply chains as standard operating procedure.

Infrastructure matters. So does expertise.

Clinical trials involve, at a basic level, the shipping of containers filled with chemicals. When a trial container on a fast track for review shows up at a checkpoint with only a list of chemicals to identify it – no brand name, no record in any tariff book – how does it quickly pass-through customs?

Expert supply chain partners can guide these trial products through entry and exit points with contacts in advance, proven contingency plans, and insider knowledge. These partners understand that every moment counts as clinical trial samples and medicines move back and forth.

TWO

Innovation in medicine

Innovation in medicine is a major change agent in healthcare and healthcare logistics.

More than half of all new drugs today are biologically derived and fragile. These biologics require very specific storage and transport temperatures and must be kept stable in transit.

As well, many of the new drugs being developed for rare and orphan diseases are biologics.

Cold chains – supply chains that strictly control temperatures and times-in-transit at every stage of shipment (and even development) – are now fundamental to the process of medical innovation.

Cold chains will grow even more important.

Emerging cell and gene therapies and personalized medicine require temperatures below -150 degrees Celsius. In Asia, development of a new generation of time- and temperature-sensitive generic drugs – bio-generics – is stretching existing cold chains to their limits.

Some cell and gene therapies ... and many treatments in an even newer wave of mRNA drugs that are now proving to be effective ... require 'needle-to-needle logistics.' This is a highly specialized transportation regimen that goes from the extraction of, say, bone marrow or spinal fluid to a lab where it can be reengineered using increasingly sophisticated and expensive techniques, then shipped back and reintroduced to heal a patient — personalized medicine.

Such exquisitely designed healthcare leaves no room for errors in transportation. Mistakes cause pain; delays cost lives. The clock is ticking on every sample, every treatment, so logistics companies face the challenge of being on time and retaining uncompromised quality exactly 100 percent of the time.

A notable recent healthcare industry statement from IQVIA Institute for Human Data Science, as reported by Air Cargo News (July 26, 2019) asserts that the global biopharma industry loses \$35 billion annually due to failures in temperature-controlled logistics.

Not every company is cut out to be a partner in complex, lifesaving, healthcare logistics.



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THREE

Public / private partnerships

More collaboration will take place between public and private sectors in healthcare.

During Operation Warp Speed, UPS Healthcare worked side by side with the United States military, the White House, McKesson, Pfizer, Moderna, Johnson & Johnson, and Novavax. By any standard, that collaboration led to success – a vaccine against COVID-19 in just 248 days, the shortest time ever for any vaccine.

The synergies of public perspective with private infrastructure/expertise saved countless lives and slowed the economic impact of the pandemic.

That same partnership of public and private players then worked together to deliver doses of

the COVID-19 vaccine to billions of people around the globe. The synergies of public perspective with private infrastructure/expertise saved countless lives and slowed the economic impact of the pandemic.

This public-private model is already influencing other work in healthcare.

Globally, new public-private partnership programs assess water monitoring, perform contact tracing, address medical equipment supply, and improve other areas of public and private health. Hybrid collaborations are also leading to unexpected innovation.

Healthcare leaders anticipate that public-private partnerships with greener supply chains will play a growing role in global sustainability efforts.

Watch for future collaborations that blend public long-term perspectives and financial resources with private industry's infrastructure and fast response times to benefit the 8 billion inhabitants of the globe.

FOUR

Intensified efforts to de-risk supply chains

The pandemic revealed the healthcare industry's overdependence on China for sources, equipment, and material goods. Supply chains out of Asia failed at the very moment they were most needed.

To avoid future risk, companies are actively seeking flexible alternative sources, closer to home, for their drugs and devices.

This relocation, called nearshoring, isn't simply theoretical. It's happening now.

In April 2022, UPS surveyed 113 global supply chain leaders, and 87 percent mentioned a change in sourcing strategy – near-shoring, regionalization, on-shoring, or something similar – as a priority in planning considerations.



These leaders are second-guessing the exposure and cost of Asian production and supply chains due to several factors.

Labor expenses are creeping up. Speed to market from far-flung corners of the globe is a challenge. Companies are putting more emphasis on Environmental, Social, and Governance (ESG) goals, focusing on managing complexity, consumption of fuels, and compliance.

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They also see growing competitive issues in India's and China's huge generic drug industries. Major pharmaceutical companies, especially, are asking whether they really want to operate side-by-side with competitors in nations lacking the standards of intellectual property protection they'd prefer.

There's even a more basic driver behind the new wave of near-shoring – cost.

Operations that are closer to home can reduce expenses and complexity. It shows in enhanced control over products, and in moderation of the financial impact of restrictions on shipping and deliveries. Simply being in the same time zone as production and shipping simplifies business and improves collaboration.

Nearshoring has unquestionably moved nearer – to the center of strategic decision-making in healthcare and healthcare logistics.

FIVE

Equity in distribution and availability of healthcare

The pandemic exposed a weakness in global supply chains that serve developing countries in Africa, Asia, and Latin America.

Tools such as delivery drones and specialty portable freezers now exist to bring the best in healthcare to those locations, but policies must be in place to support such innovations.

The problem is complex. Better equity in distribution depends on supply chain infrastructure, but it also goes hand-in-hand with

governance in the many nations of the world where governments run and fund healthcare.

The issue isn't necessarily limited to low- or middle-income nations. Forty percent of United States healthcare spending goes through Medicare/Medicaid, meaning that tens of millions of people rely on good government policy and dependable delivery of medicines and goods for their health.

In some parts of the world, governments face turmoil. Troubles there mean troubles with the equitable availability of medicines, especially to people living in remote locations. Tools such as delivery drones and specialty portable freezers now exist to bring the best in healthcare to those locations, but policies must be in place to support such innovations.

Better cooperation in treaties and funding, and better coordination between governments and humanitarian agencies will bring improved equity.



The emergence of virtual home-based healthcare

A major move to a virtual, home-based healthcare world is under way. A network is emerging, with labs, clinics, on-line physicians, in-home nurses, and telehealth providers all linked in a digital eco-system to keep people healthy.

Digital transformation, the driving force behind this shift, is changing client engagement, the customer experience, and supply chains.

The pandemic caused a striking change in ways people connect with one another, with brands, and with goods and services. We're now seeing a proliferation of digital healthcare start-ups that connect patients with licensed healthcare professionals.

Technology enables these new companies to put patients, not institutions, in control of their own health, giving them more control over the flow of healthcare funds. They also present an entirely new distribution mechanism for pharmaceutical companies and other healthcare services.

Across the board, digitization is driving healthcare companies to rethink go-to-market strategies. One sign of its impact shows up the accelerated growth of the medical device and laboratory sectors.

According to the Centers for Disease Control and Prevention, the U.S. healthcare industry will conduct 14 billion diagnostic tests at 260,000 labs in 2022. Industry publication Chief Healthcare Executive reported in January 2022 that more than 31,000 new laboratories operate now in the U.S., double the number in 2020. Another industry publication, IBIS World, in October 2021 projected the U.S. lab market to grow to more than \$75 billion by 2027.

The diagnostic supply chain for at-home care is unique due to the convergence of kits, samples, logistics, and patient-returned samples. Home healthcare firms need logistics partners with adaptability, visibility, and scalability. End-to-end supply chain connectivity is in high demand.

Meanwhile, this digital evolution is influencing another – at hospitals.

The pandemic challenged the status quo at hospitals with limited supplies/allocations, port closures, communication to suppliers and customers, executive orders/regulations, and a strong shift to telemedicine and home delivery.

So hospitals are moving now toward value-based care – delivering health, not just healthcare. It means changing the business model from delivering sick care to keeping people healthy ... at home or wherever they are.

This sets up the future of the hospital as less a physical space and more a node connecting care to patient. Critical elements of this model must be comprehensive care technology and, as always, the first mile/final mile interplay between samples/monitoring and the delivery of medicines/information.

Home care will be about connections – connections between caregivers and patients, between patients and products, with strategies in place to make sure products are ready for delivery. Technology in homes can communicate schedules and medicine inventory levels, connecting the dots to align placement of orders and deliveries ... and leaving patients free to heal and live as freely as possible.

Forward-thinking healthcare logistics companies already have the essentials in place. They're ready with cold chains and temperature monitoring. They have GPS location solutions and track-and-trace solutions in place. And they have fully embraced a future of holistic logistics driven by technology.



Where do we go from here?

Post-pandemic healthcare is a whole new concept compared to pre-pandemic healthcare.

A combination of shortened clinical trial cycles, new technologies, next-generation medical innovations, reappraisals of risk tolerance, partnerships, equitable care, and home-based healthcare has set new standards and redefined norms for the industry.

A shift in healthcare philosophy underlies these advancements.

Patients want control, a consistent experience, and reliable speed, quality, precision, and visibility of deliveries.

Healthcare firms want exactly the same things – control and consistency, and reliable speed, quality, precision, and visibility/tracking.

The best healthcare logistics partners have evolved their physical supply chain networks into global end-to-end digital ones. Their agile and smart platforms offer end-to-end visibility, digital forward orchestration, digital reverse logistics, and data insights, analyses, and actions.

Healthcare runs ... then gallops ... on healthcare logistics. This is an inseparable partnership. One does not succeed today without the other.



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