

Healthcare Logistics

From efficiency to excellence: Rising to new challenges



A new era

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Healthcare manufacturing is at a critical juncture. The rise of biologics, personalised medicines, and therapies like GLP-1 is reshaping production demands and introducing unprecedented complexity.

At the same time, manufacturers must navigate volatile supply chains, workforce constraints, evolving regulations, and geopolitical uncertainties – all while

maintaining unwavering quality standards and cost controls.

Meeting these challenges requires something many manufacturers may not have considered: a reimagined logistics strategy. To overcome these pressures, manufacturers need a resilient supply chain that can swiftly respond to disruptions, ensure regulatory compliance, and scale operations without compromising patient care.

Adopting a logistics-first strategy

In traditional manufacturing, logistics are often an afterthought. However, today's healthcare environment demands the opposite: a logistics-first strategy that integrates supply chain planning into every production decision.

This modern approach builds on GxP-compliant infrastructure and a global network of certified healthcare sites. With these foundational elements in place, healthcare manufacturers can weave resilience into their production supply chains, reducing interruptions, ensuring compliance, and building confidence at every stage.



Smart warehousing: Where precision meets efficiency

In healthcare manufacturing, there is zero room for error. Maintaining product integrity and regulatory compliance demands more than traditional warehousing. That's where smart warehousing comes in, delivering consistent product quality through precision, control, and agility.

For example, at Kuehne+Nagel, we manage off-site warehouses near the manufacturing plants. A 360-degree end-to-end approach ensures direct production feed, seamless material flow, and consistent operational excellence. These facilities operate in full compliance with the most rigorous GDP and GMP standards, equipped to handle highly complex product categories, including deep-frozen goods, hazardous materials, high-value products, and narcotics.

This combination of strategic location, operational precision, and uncompromising quality ensures that every healthcare product meets the highest standards, especially in environments where compliance and reliability are non-negotiable.





Cold matters: Maintaining product quality through temperature control

In an industry where lives depend on precision, every component must be handled with uncompromising care and the right temperature control, from active ingredients to final products.

Maintaining warehouses and transport at specific temperatures can be costly to budgets and the

environment. However, there is an alternative route that can be both sustainable and cost-effective. Temperature-controlled routes offer improved sustainability and product integrity across global routes and transport modes, maintaining temperature ranges from +2 to +8°C and +15 to +25°C.



Essential qualities of warehouses serving healthcare logistics

- GxP and GMP-certified facilities operate under pre-validated standard WMS solutions and audit trail functionality.
- Advanced temperature-controlled infrastructure accommodates 2–8°C, CRT, cryogenic, and ultra-low storage and transport.
- End-to-end serialisation solutions with upstream aggregation, labelling, and regulatory data integration.
- Integrated eQMS (quality management system) solution that serves as a foundation for efficiency and compliance.
- Compliance-focused capabilities, with services like consistent sample collection, RAMAN inspection, and GMP-grade retention storage.

When assessing a warehouse, ensure these capabilities integrate with the broader supply chain. With solutions like Kuehne+Nagel's HealthChain-certified compliance stack, customers benefit from compliant warehouses, plus global visibility tools, partner networks, and client workflows, ensuring traceability and readiness at every touchpoint. Through airtight compliance and meticulous attention to detail, therapies and patient outcomes are safeguarded.

Greater visibility means greater control

Control and clarity are vital in global healthcare supply chains to avoid delays and interruptions, which can trigger a dangerous domino effect of compromised products.

Modern digital platforms are the foundation of this control. They translate complexity into confidence and use data to deliver real-time visibility, actionable insights, and seamless compliance. At Kuehne+Nagel, the core of these platforms is cutting-edge Warehouse Management Systems (WMS), specifically

designed for the healthcare and life sciences sector. Each site is powered by a computer system-validated (CSV) WMS, ensuring full regulatory compliance and zero risk in warehouse data management.

When integrated with tools like Kuehne+Nagel's myKN and control tower logistics, these platforms offer manufacturers end-to-end visibility. From inbound raw materials and onsite inventory to production-ready components and outbound distribution, this means smarter and faster decision-making with safer outcomes.



Digital platforms like myKN can unlock powerful benefits:



Real-time shipment tracking, inventory views, document access, and analytics – all in one secure interface.



Exception management tools that empower proactive issue resolution, keeping inventory flows intact and minimising compliance risks.



Serialisation number handling that integrates seamlessly with customer systems and regulatory databases to ensure products are traceable across the globe.



Control tower logistics that consolidate data across locations and modes, issue alerts, and orchestrate rapid, coordinated responses when disruptions occur.

Comprehensive support from start to finish



Support for healthcare manufacturing begins upstream, before production starts. Building resilient supply chains requires seamless coordination across the entire value chain.

At Kuehne+Nagel, we ensure that logistics are tightly aligned with manufacturing needs. Whether operating in-plant or through strategically located external warehouses near production sites, we manage the flow of materials from raw ingredients and APIs to packaging components.

Our logistics capabilities include temperature-sensitive transport, regulatory compliance, and timely delivery of components like vials, syringes, and excipients. Pre-

production coordination connects suppliers, plants, and quality teams to ensure readiness before the first batch is made.

Inside the plant, we support internal material flow with precision line feeding, subassembly management, and efficient movement between workstations. Across multi-site operations, harmonised processes and unified digital visibility help synchronise activities and maintain control at scale.

Once products leave the factory, our global network ensures they reach their destination swiftly and securely—where patients and providers need them most.



Building resilience through strategic partnerships

Healthcare manufacturing must evolve to meet rising complexity and demand, but manufacturers don't have to face these challenges alone. The right logistics partner delivers adaptive logistics solutions engineered to help face this new era with agility, resilience, and long-term strategic alignment.

Imagine logistics support that goes beyond transactions towards integrated production support. Deep expertise, validated processes, and purpose-built platforms can enable healthcare providers to scale faster, stay compliant, and lead confidently into the next wave of healthcare innovation.

Partnering with a logistics provider that can support you from clinical trials through full-scale commercial production is essential to success in this environment. The right partner offers modular infrastructure, flexible staffing models, and a global network with multimodal capabilities. Together, these elements ensure your operations remain agile no matter the circumstance.

In a world where healthcare demands are evolving rapidly, strategic logistics partnerships are essential to delivering innovation, resilience, and patient care at scale.

About us

With approximately 82,000 employees at almost 1,300 sites in close to 100 countries, the Kuehne+Nagel Group is one of the world's leading logistics providers. Headquartered in Switzerland, Kuehne+Nagel is listed in the Swiss blue-chip stock market index, the SMI. The Group is the global number one in air and sea logistics and has strong market positions in road and contract logistics.

Kuehne+Nagel is the logistics partner of choice for 400,000 customers worldwide. Using its global network, logistics expertise and data-based insights, the Group provides end-to-end supply chain solutions for global companies and industries. As a member of the Science Based Target Initiative (SBTi), Kuehne+Nagel is committed to sustainable logistics by reducing its own environmental footprint and by supporting its customers with low-carbon logistics solutions.

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