

2024

CATCH 22° CELSIUS

UNDERSTANDING THE QUANDARY
OF PHARMACEUTICAL COLD CHAIN
LOGISTICS IN 2024 AND BEYOND...

METTCOVER GLOBAL[®] INC.



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OVERVIEW

In an expected forecast, intelligence reports predict a stellar growth for cold chain medicines exclusive of vaccines. The growth is powered by the Biotechnology therapies and the post covid impact, which has placed personal health care at the centre of a common man's life. The rise in medicinal use in developing or "Pharmerging" countries can be attributed to the public awareness and easy access to health care drugs (Mitsumori, 2019) .


\$ 1.7 Trillion

Global pharmaceutical revenues are forecasted to reach between \$ 1.6 Trillion to \$ 1.9 trillion by 2027. Most studies indicate a figure of \$ 1.6 trillion in 2024 itself.

Source - Statista Research.

\$ 694 Billion

Evaluate Pharma predicts that sales of biotech-based products will more than triple to \$694bn over the decade ending 2028.

Source - Evaluate Pharma World Preview 2023.

Cold Chain Conundrum

The growth trajectory in cold chain products is a given but the insights prove a visible inadequacy to meet the forthcoming requirements and the pressing demands of patients for consistent visibility, quality assurance, adaptability, and swift execution.

The mounting expectations placed on cold chain participants demand an ability to achieve this potential on a grand scale.

BUT HOW ?

CONUNDRUM INDEED...

“Life sciences domain cannot simply pivot from outdated methodologies to address these new needs. Instead, it necessitates novel proficiencies and flexible operational frameworks capable of efficiently distributing 100,000 doses of traditional medicines as seamlessly as delivering a solitary dose of personalized therapy.”

Source - Accenture, 2023

The cold chain sector may not have to overhaul their entire supply chain infrastructure. Nonetheless, formulating a strategic plan and a clear pathway forward can aid to achieving rapid scalability without venturing into hasty or imprudent investments.

Research conducted by Accenture revealed a crucial awareness among life sciences companies, especially those not involved in the COVID-19 vaccine rollout, regarding the potential obsolescence of their operational models within the evolving biopharmaceutical landscape. Around 70% of respondents recognized this gap, highlighting a deficiency in possessing efficient logistics cold chain capabilities at a scale necessary for future competitiveness.

**TAKE RIGHT
DECISION;
THE FIRST
TIME.**

GROWTH LANDSCAPE

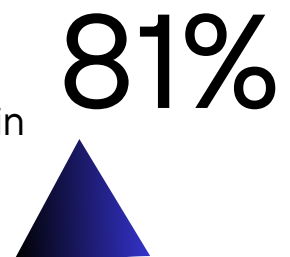
From 2018 to 2024, the demand for therapies reliant on cold chain capabilities is anticipated to escalate by a striking 48%, outpacing non-cold chain therapies by 21 percentage points.

This surge underscores the critical role cold chain capabilities now play in ensuring the safe and efficient delivery of temperature-sensitive therapies.

Source -IQVIA Market Prognosis.

The collective impact of legislative, regulatory, and commercial uncertainties is fast directing the pharmaceuticals industry into an uncharted and unknown zone. Nevertheless, despite this atmosphere of unpredictability, the sector's immediate growth trajectory remains robust. Projections indicate that pharmaceutical revenues are poised to escalate at a compounded annual rate of 5.9% from 2022 to 2028, culminating in an estimated total of nearly \$1.7 trillion in 2024.

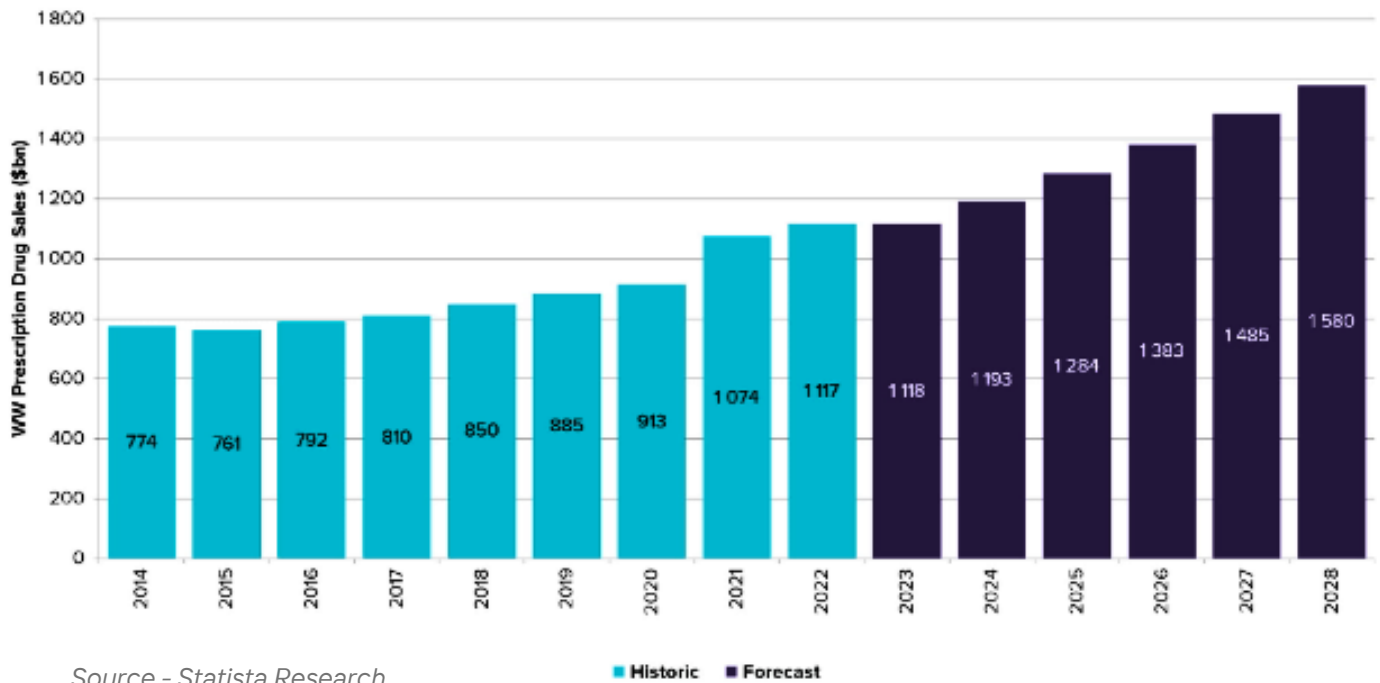
Scientific innovations or "New Medicine" are anticipated to steer a remarkable 81% surge in biopharmaceutical revenue.



The industry's shift from traditional small molecule products toward rare disease treatments, orphan drugs, and personalized medications introduces unique and unconventional demands across the cold chain, from manufacturing protocols to storage complexities and last-mile delivery procedures. Cold chain participants stand to achieve greater success not by going solo but by forging collaborative partnerships with vendors and subject matter experts, recognizing the imperative of shared expertise in this evolving landscape.

(Accenture 2022)

WORLDWIDE PREDICTION OF MEDICINE SALE 2014 - 2028

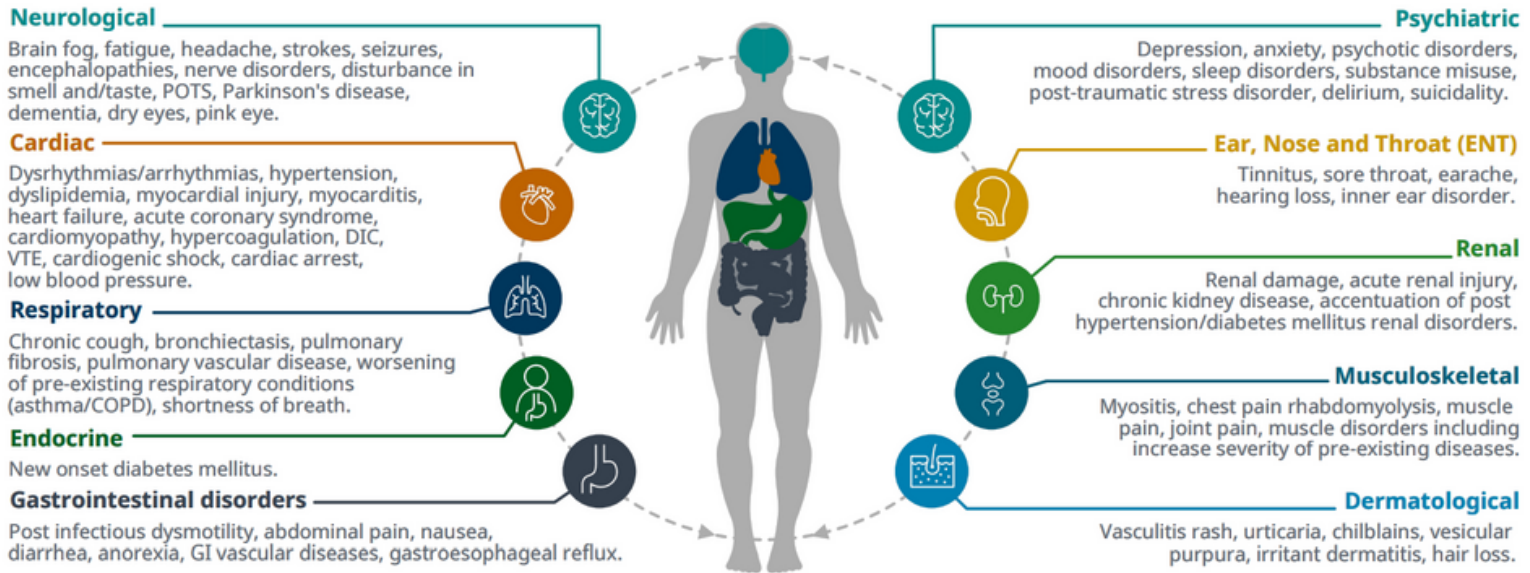


The anticipated growth in prescription drug sales is expected to reach nearly 6% year-on-year up to 2028, according to Evaluate Pharma's consensus forecasts. These figures are derived from assessments provided by sell-side analysts and encompass projections for Research and Development (R&D) initiatives alongside existing market products.

In the near future, these statistics suggest the conclusion of the pandemic surge. A prediction of zero growth is foreseen for 2023 compared to the preceding year. The demand for Covid-19 prevention and treatment is becoming more foreseeable compared to the fluctuating needs during the pandemic era, leading to a declining market. Sales associated with SARS-Cov-2-related products, which surpassed \$100 billion in 2022, are estimated to reduce to less than half of this figure in 2023, with a further projected drop to approximately \$30 billion by 2028, according to current estimates.

IQVIA 2023 report posits that the utilization of medicine, quantified by defined daily doses, witnessed a 36% rise in the past ten years, primarily due to enhanced accessibility to medications. Projections indicate a slowdown in growth trajectory up to 2027, expecting to reach a collective count of over 3.4 trillion doses, marking an approximate 8% increase from the 2022 level. The most substantial surge in volume is anticipated in Latin America, Asia, and Africa. In contrast, North America and Europe are poised to experience minimal growth rates. Variation in medicine consumption per person varies across regions, with Japan and Western Europe displaying more than double the usage compared to most other geographic areas.

Studies have successfully pinpointed persistent complications resulting from COVID-19 infection affecting nearly all bodily organ systems.



Source -IQVIA Market Prognosis.

The continual impact of the COVID-19 pandemic has notably elevated feelings of depression, anxiety, and stress among the general populace. It has posed significant challenges for individuals dealing with substance abuse disorders or drug dependency, often subject to societal stigma. The disruptions caused by the pandemic to the pre-existing lifestyle have contributed to increased concerns regarding asymptomatic and lifestyle-related conditions such as obesity, diabetes, and heart diseases. The sustained sedentary lifestyles during prolonged periods are expected to escalate the prevalence of these chronic diseases.



There's a gradual understanding emerging around the post-acute sequelae of COVID-19 (PASC), indicating that 10-20% of previously infected individuals are reporting persistent symptoms, reinforcing initial apprehensions about the virus's lasting effects.



The love and hate relationship of Pharmaceutical Manufacturers and Cold Chain Enablers will thrive in 2024.

This time around, both have to expertly juggle the props of “low-costs”, “visibility” and excellence while walking on the tight rope of “sustainability”.

Escalating demand for therapies, especially those reliant on cold chain logistics, is propelling the industry towards unprecedented growth. This growth is significantly driven by the rise in patient-centric models, emphasizing the delivery of high-quality healthcare outcomes. However, this surge in demand creates a pressing need for an adaptable and robust supply chain capable of ensuring the safe and efficient transportation of temperature-sensitive medical treatments.

DECODING CATCH 22 CELSIUS°

WITH METTCOVER GLOBAL

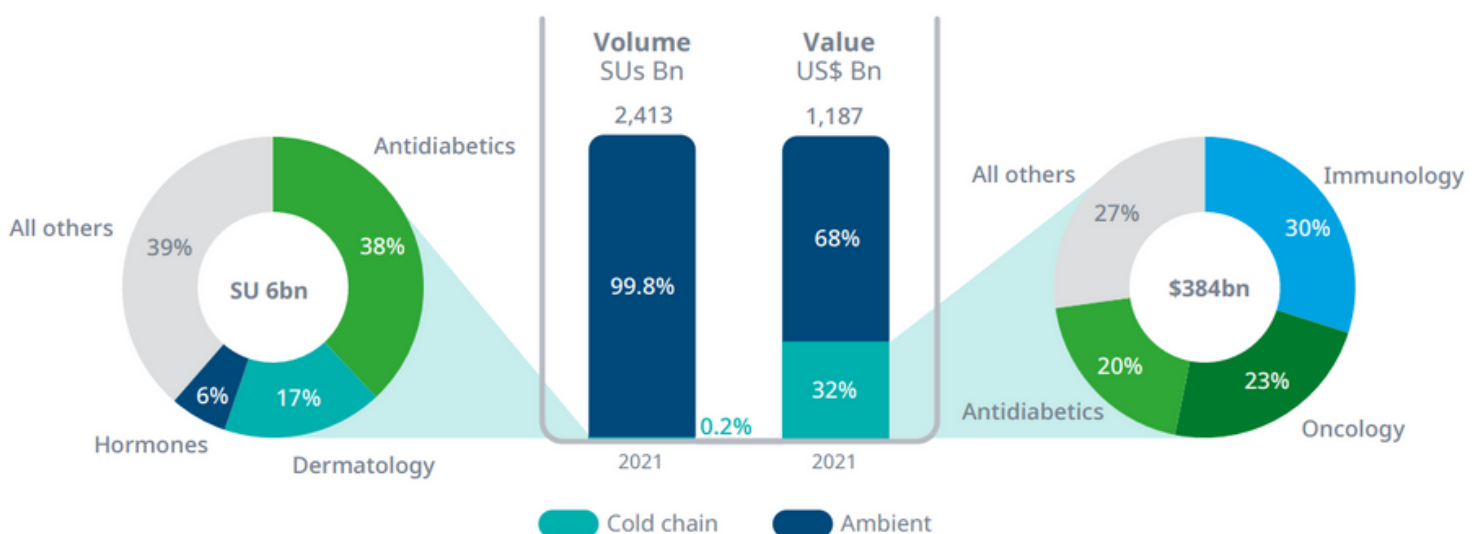
COLD CHAIN

Cold chain defines an unbroken continuum of temperature-controlled logistics. It includes the entire trajectory from manufacturing to storage and eventual distribution, with a prime objective of preserving the integrity, quality, and safety of pharmaceutical products from their creation in laboratories to their administration.

Temperature Ranges

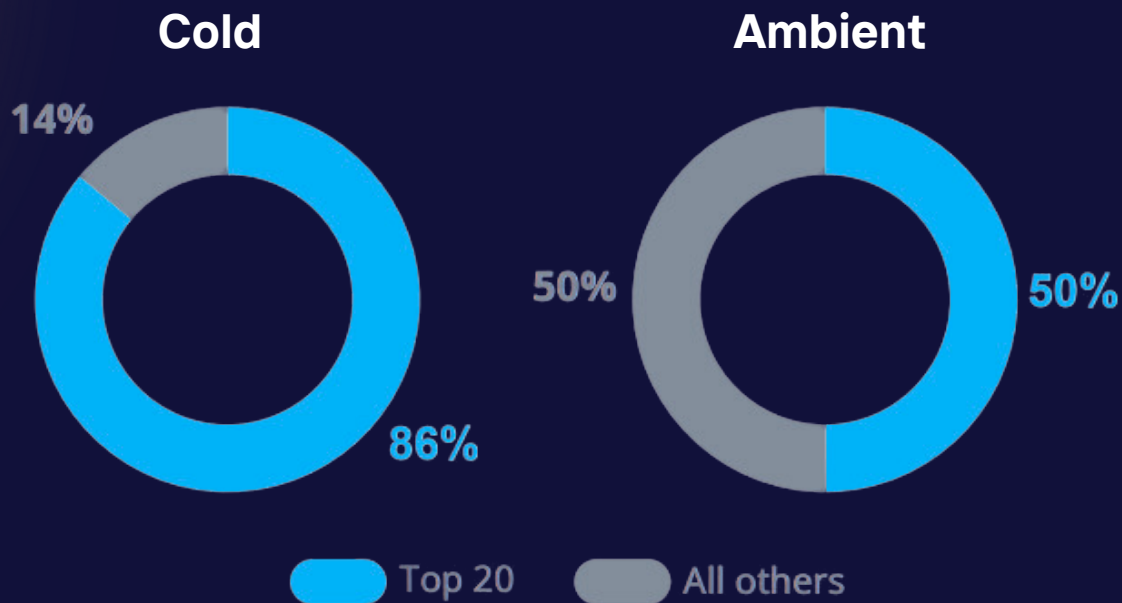
Temperature	Degree °C	Example
Ambient	15 - 25	Heparins
Refrigerated	2 - 8	Monoclonal Antibodies
Frozen	Below - 15	mRNA Vx, Cell Tx

Global cold chain market exclusive of vaccines and COVID-19 therapeutics (2021 Data)



Source -IQVIA Market Prognosis.

How Top 20 Pharmaceuticals Contribute to the Cold Chain?



Biological products have significantly propelled growth in the past decade and are anticipated to remain a pivotal driving force. This trajectory is poised to persist given that biologics constitute nearly half (49%) of the worldwide pharmaceutical pipeline. As exclusivity periods expire and initiatives to enhance the utilization of biosimilar medications intensify in affluent nations, the adoption of biologics is anticipated to escalate further.



The growth of medicine use defined in daily dose per capita, although is slower than the last decade but in 2027, the human species is projected to consume over 3.4 trillion doses, up about 8 % from the 2022 levels.

GROWTH CHAIN

The influence of COVID-19 on medicine usage persists, shaping global pharmaceutical markets and is anticipated to elevate the cumulative pharmaceutical market by approximately \$500 billion between 2020 and 2027, primarily attributed to vaccine-related factors. While disruptions in demand for various medications due to delayed diagnoses continue, it is projected that the global market growth will return to the projected pre-pandemic levels by 2024. Across the world, initial vaccination rates have surpassed previous projections, yet there is a lag in booster utilization. This disparity creates substantial uncertainties regarding the pandemic's future trajectory and the potential resurgence of infections, particularly in regions with lower immunization and booster rates.

Evaluate Pharma Report projects Biotechnology's spending to encompass 35% of global expenditure, encompassing groundbreaking cell and gene therapies and a maturing biosimilar sector. Anticipated advancements in oncology and immunology are on the horizon, with next-generation biotherapeutics presenting a range of uncertain outcomes, both clinically and commercially.

The future of biotech holds prospects for notable breakthroughs, particularly in the realms of oncology and immunology.

In terms of spending on specialty medicines, it is estimated that by 2027, these medications will constitute approximately 43% of global spending and 56% of total spending in developed markets. The global spending on cancer treatments is forecasted to reach \$370 billion by 2027, primarily driven by the introduction and utilization of innovative drugs, with limited impact from new biosimilars. While spending on immunology is anticipated to grow, the pace of growth is expected to decelerate to a range of 3-6% through 2027, attributed to price reductions due to biosimilar competition, though volume growth remains robust at 12% annually. Emerging therapies for rare neurological conditions, Alzheimer's, and migraines are poised to stimulate expenditure growth within the field of neurology.

Source -Evaluate Pharma (2023)

CATCH 22

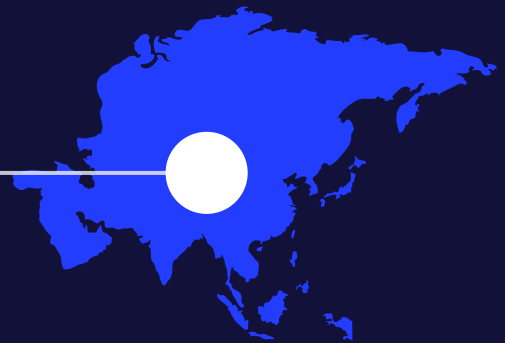
Scaling Ops and Silos

Cold chain logistics within the pharmaceutical industry confronts a formidable challenge in aligning operational capacities and infrastructure spaces to match the escalating demand. A significant hurdle in scaling cold chain infrastructure for therapies is the acute shortage of trained workforce and lack of a potential talent pool. The escalating real estate costs in key nations like China, India, and the US, driven by surging interbank exchange rates, exacerbate the challenge.

These functional barriers pose a significant obstacle to the growth of the global pharmaceutical cold chain logistics market.

34%

Global Growth attributed to APAC region till 2027



34% of the global pharma cold chain growth up to 2027 is predicted from APAC Region. Scaling operations to match the pharmaceutical demand is challenging. real estate prices in India, China and elsewhere are displaying a significant up move and functional infrastructure is costly and difficult to maintain.

☀️ CATCHING CARBON

The Cost of Cold Chain

Healthcare currently contributes approximately 4.2% to the global carbon footprint (Accenture, 2023). Cold Chain logistics is also a significant producer of green house gases and has a large carbon footprint in form of using non recyclable material. Within this sector, pharmaceuticals play a substantial role. As part of their commitment to environmental, social, and governance (ESG) goals, the pharmaceutical industry aims to adopt more environmentally friendly practices. Besides meeting environmental targets, the recent significant surge in gas prices and resultant inflation has underscored the urgency of conserving energy for economic reasons.

Life Cycle Assessment studies suggest that medications account for about 25% and 33% of the total emissions from healthcare systems.



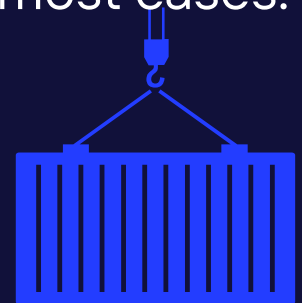
Curbing the carbon footprint in light of the anticipated growth is a formidable challenge which can be resolved to an extent with close partnerships between pharmaceutical and cold chain professionals. It is notable that there is no quick-fix available .

☀ COLD v/s AMBIENT

Historical data and current forecast shows a larger growth of cold chain medicines in comparison with the ambient category. This presents significant logistical hurdles for manufacturers, cold chain facilitators and for the over all healthcare system. Ensuring an end-to-end uninterrupted integrity within the cold chain is difficult and costly. However the avenue to pass on this cost are fairly limited.

Pharmaceuticals manufacture are already reeling under inflationary pressure. The scope of adding cost to the primary output system is limited or nil in most cases.

The cost of moving goods through air or through hired containers are up 100% -200% respectively from 2019 levels. This also adds to the indirect costs of cold chain and pharma operations as the higher cost of supply chains induce inflationary pressures across economies.



Source -IMF (2022)

PHARMA PARTNERSHIP

Pharmaceutical companies and their logistical partners utilize various transportation methods, including sea or air freight, employing both active (energy-powered) and passive (insulating materials, refrigerants, or phase-change materials) cooling solutions. The adherence to an end-to-end cold chain is obligatory by regulatory standards. Any breach in this chain could result in substantial economic repercussions, and more critically, endanger the health of patients. While the prevention of temperature deviations is well-managed during the initial and lengthiest stages of transportation, complications often arise during the final segment of the supply chain - the last mile delivery.

During this phase, the conveyance of cold chain medications occurs in environments with less stringent temperature controls, making temperature fluctuations more probable. The magnitude of the last mile challenge fluctuates depending on the nature of the product. For instance, the World Health Organization (WHO) estimates that up to 50% of global vaccines are rendered unusable due to cold chain failures, a figure likely to be even higher in underprivileged nations.

The complexities surrounding vaccine cold-chain logistics pose a dual challenge: these products are high in volume and must reach even the most remote and impoverished communities, particularly in low-income countries lacking sophisticated cooling infrastructure.



The cold chain and pharmaceuticals industry camaraderie must march ahead with an imperative to revolutionize cold chain logistics. The change is more so internal and must deliver remedies to cease costly medicine wastage. In its primary cause, the partnership should work to minimize the use of refrigeration altogether.

☀️ VISION '24 & BEYOND

Focus on segments that offer better values than others.



Logistics

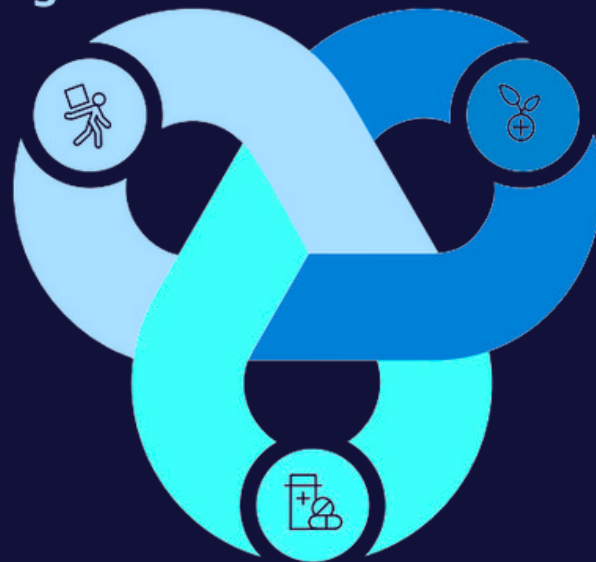
Ensure Minimum Temperature Excursions through the Last Mile delivery

Transition to Green Fuels and Passive Cold Chain Solutions

Environment



Geographically Equate the Manufacturing



Leverage Bio Medical innovation to explore ambient temperature alternatives.

Biomedical innovation



Research for stable drug formulations that can be securely transported using Passive Cold Chain Solutions.

Source -IQVIA Report (2023)

CATCHING THE GROWTH

The interplay between pharmaceuticals manufacturing and cold chain logistics is a primary stakeholder of key human and economic growth indicators; including but not limited to Public Health Care and Equitable Access to Therapies. An enduring partnership between these sectors is critical to mitigate the complexities of the evolving cold chain and effectively harness the projected growth of pharmaceutical products.

Collaborative efforts and an active dialogue between these entities must enable long term and trusted partnerships where each stakeholder can evolve to complement their modalities with the other. The symbiotic relationship signifies the will to approach the issue of cold chain waste and sustainability with scientific rigor and academic astuteness.

The Catch 22 Report highlights the challenges that we face in light of accommodating the unprecedented growth in the sale of medicines and related therapies requiring ambient and cold logistic solutions. The report recommends an academic discourse where research imperatives are guided to formulate medicines that can increasingly be transported using passive cold chain solutions and within an ambient profile.

Pharmaceutical enterprises, driven by innovation, are utterly interconnected with cold chain logistics to optimize temperature control while reducing the environmental impact. Exploration of novel drug delivery systems can deliver a sustainable breakthrough in this direction.

“

In this partnership, a primary and yet, less explored avenue remains the congruence of biomedical innovations with logistical dynamics.

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ABOUT METTCOVER

Mettcover Global Inc. is a registered business entity in Las Vegas, USA. The company is one of the largest manufacturers and global suppliers of Thermal Pallet Covers, Insulated ULD Covers, Insulated Container liners, Vaccine Cooler Bags, Insulated Drum Covers; made of lab-validated and rigorously tested material grades. Mettcover Products are an innovation at the intersection of thermal science and material engineering; with an imperative of protecting time and temperature sensitive Perishables and Pharmaceuticals cargo.



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