

Together for a healthier world



Climate change, sustainability and their impact on the healthcare industry

A special report by Omnia Health on the occasion of COP28

Compiled by Anthony Permal

insights.omnia-health.com

Contents

03

Introduction: Sustainability in the Pharmaceutical and Healthcare Industries



05

The Current State of Play



07

Emissions Control in the Healthcare Industry



09

Source Code: Sustainability Concerns in Procuring Raw Materials



10. The Supply Chain: Distribution and the Environment

11. The Bottom Line: Financial Implications as an Obstacle

12. Governing Governance: Regulatory, Policy and Stakeholder Implications

13. Diagnosing the Future



Introduction

Sustainability in the pharmaceutical and healthcare industries

“Climate change is the most significant challenge of this generation, and nowhere is its impact more visible than in the Middle East and North Africa (MENA). The region has been heating up at twice the global average for the past four decades, and is projected to be 4°C warmer by mid-century. While governments are playing their part in setting up the net-zero ambition and creating an enabling environment, companies need to shoulder the responsibility of delivering sustainability action to move the discourse on climate adaptation forward.” — WEF

As the world convenes for the COP28 climate change event in the UAE, a critical lens is being cast upon every sector’s contributions toward a sustainable future. The pharmaceutical and healthcare industries, the heart of global well-being, are no exception as they represent both significant economic weight and a direct lifeline to billions. These sectors possess an exceptional capacity — and responsibility — to lead in sustainable transformation.

Historically, industries related to healthcare have had a complex relationship with sustainability. While they have delivered remarkable innovations that have helped prolong and improve the quality of human life, their extensive supply chains, energy-intensive processes, and waste production have raised environmental concerns.

According to a recent report by the World Economic Forum, healthcare is responsible for 4.4% of global emissions, significantly more per dollar of revenue than the automotive sector. To combat the adverse health consequences of the climate emergency, pharmaceutical companies need to expand

access to healthcare globally and reduce their greenhouse gas emissions through net-zero strategies.

The impact of climate change both on and because of the healthcare industry is two-pronged. On one hand, climate plays havoc with the very tools that underpin the industry, i.e., raw materials production and supply chain due to adverse and destructive weather directly impacting access. Extreme weather systems, sky-high temperatures, extreme cold snaps, floods, or otherwise, the pharmaceutical supply chain requires shipments to reach their intended destination in optimal condition to avoid delays that may impact the product. On the other hand, the emissions and carbon footprint due to drug manufacturing and the very same supply chain cause ill effects on climate as well.

During COP27, research indicated only 4% of biotechnology and pharmaceutical firms were aligned with the Paris 2030 climate objectives, despite being a sector that ranks as one of the top carbon-dioxide contributors globally. In particular, a 2019 publication revealed that for every US\$1 million in pharmaceutical revenue, it emitted 48.55 tonnes of carbon dioxide equivalent (CO₂e).¹

It is important to note that recent years have seen a shift. Faced with mounting evidence of the impact of climate change on human health — ranging from the spread of vector-borne diseases due to changing ecosystems to the repercussions of extreme weather events on vulnerable populations — there is an increased urgency for these industries to address their ecological footprint. We are already seeing decisions being made to curtail these concerns. Consumers are leading this shift with their voices. In 2021 a GlobalData survey revealed 43% of participants identified environmental concerns as the primary area for the pharmaceutical sector to tackle. Within that survey, 52% of respondents cited climate change as their most urgent concern.²

A study cited by EuroNews found that if the global healthcare sector were a country, it would be the fifth-largest greenhouse gas emitter.³ This has profound implications for how stakeholders view the industry's responsibility towards climate action.

Companies have begun re-evaluating their packaging strategies, adopting biodegradable materials and minimising excesses, potentially reducing thousands of metric tonnes of waste annually. Healthcare facilities, traditionally high consumers of energy, have also increasingly adopted energy-efficient infrastructures and renewable energy sources, leading to significant reductions in CO2 emissions. Recognising the environmental impact of raw material extraction, industries

have been moving toward sustainably sourced ingredients and materials. Green chemistry is increasingly being vetted and integrated into current processes by the pharmaceutical sector, focused on designing products via processes that minimise environmental impacts and toxic waste.

While these strides are commendable, it is still just the beginning. As government ministers, healthcare professionals, company decision-makers, and members of the media converge to discuss our shared future at COP28, it is imperative to highlight the role of sustainability in shaping an industry that does not just heal people, but also the planet, our only home.

We invite COP28 attendees to engage deeply with the content of this report, share insights, and collaborate on innovative strategies that will further the intertwined goals of global health and environmental stewardship.

1. <https://www.mygreenlab.org/blog-beaker/my-green-lab-measures-carbon-impact-of-biotech-and-pharma>
2. <https://www.globaldata.com/media/pharma/addressing-esg-issues-may-help-pharma-repair-reputation/>
3. <https://www.euronews.com/green/2022/08/03/if-healthcare-was-a-country-it-would-be-the-worlds-fifth-largest-emitter-what-needs-to-cha>



Current state of play

The healthcare sector is now acutely aware of the interplay between health, sustainability, and climate change. This has spurred many in the industry to adopt more sustainable practices and contribute to reducing the impact of global warming, particularly with hospitals, pharmaceutical manufacturing, and medical waste being primary contributors. There is now a concerted push to reduce this carbon footprint with many in the industry turning to renewable energy sources, implementing energy-saving measures, and investing in green infrastructure. This became a key focus during the 2020 pandemic, with the impact of lower emissions due to production slowdown bringing positive air quality and weather.

The pandemic prompted a renewed call in the industry to create sustainable supply chains and this shift encompasses the sourcing of eco-friendly materials, waste reduction, and assuring ethical labour practices. A key challenge is the proper disposal of medical waste. The surge over the past three years in single-use PPE underscored this issue, leading hospitals and clinics to explore solutions like recyclable or biodegradable alternatives to traditional plastic-based products.

As climate-related disasters continue to arise, healthcare facilities need to become more resilient. This involves infrastructure upgrades designed to withstand extreme weather events, rigorous emergency preparedness drills, and adopting telemedicine to ensure patients remain connected during crises, something highlighted many times in other reports by [Omnia Health](#) over the past year and showcased at [Arab Health](#) in Dubai.

Sustainable Packaging in the Pharmaceutical Industry

The evolution of packaging in the pharmaceutical sector is not just a trend; it is an imperative driven by both environmental concerns and consumer demand. Over the last decade there has been a push towards minimising packaging, using recycled or biodegradable materials, and simplifying the layers involved to facilitate recycling. But this isn't solely about the environment, but about patient accessibility and safety. Simplified packaging can reduce medication errors, ensure product integrity, and even improve medication adherence among patients. With the industry continuing to evolve in this focal area, integrating sustainability with patient-centricity in packaging designs will be key to influencing environmental impact.

Energy Efficiency in Healthcare Facilities

Healthcare facilities are among the top energy consumers worldwide, given their round-the-clock operations, specialised equipment, and the need for precise environmental controls. Even so, energy-efficient designs, such as better insulation, smart lighting, and efficient HVAC systems, have seen increasing adoption. Healthcare Design Magazine reports that a 30% energy reduction can be obtained over a 10-year period of 3% incremental gains¹ when committing to sustained energy



efficiency in healthcare facility operation and design. Not only does this reduce the carbon footprint and OPEX, there is evidence to suggest sustainable design elements can enhance patient recovery rates and overall well-being. As healthcare facilities transition to a more sustainable future, the dual benefits of environmental responsibility and enhanced patient care become increasingly intertwined.

Sustainable Sourcing in Pharma

The industry's complex web of raw material sourcing extends from natural ingredients to synthetic compounds, each with its own environmental impact. With depleting natural resources and growing biodiversity threats, reliance on unsustainable raw materials is environmentally damaging but can also jeopardise supply chain integrity. Responding to this, many pharmaceutical companies are making strides in ensuring ingredients are sourced responsibly. This is obtained by partnering with local communities for equitable and sustainable harvests of natural ingredients, investing in regenerative agricultural practices, and developing synthetic alternatives that reduce the demand on endangered species. Some companies have adopted digital traceability tools for increased transparency, allowing the full spectrum of stakeholders from patients to investors to view the origins and impact of products they engage with.



In response to these challenges, there has been a shift in the regulatory landscape, notoriously considered a big obstacle to sustainable manufacturing. Governments are introducing stricter regulations targeting the pharmaceutical sector's waste and water management practices. These regulations include guidelines on proper disposal of solid waste, monitoring of wastewater discharge, and mandatory reporting of water use and quality.

Regulatory, Policy and Stakeholder Implications

While adopting sustainable practices in healthcare is crucial, the transition can have several regulatory implications. As governments start recognising the urgency of climate change and with critical meetings like COP28 driving decision-making, regulations related to carbon emissions and waste disposal are becoming more stringent. Significant recent efforts include AstraZeneca's commitment to becoming science-based net zero 2045 at the latest, beginning with the launch of its new sustainable offices in Dubai Science Park, all part of the company's global Ambition Zero Carbon programme.³

Drowning in Wastewater

A critical concern in healthcare climate impact involves byproducts generated during drug production, which can be hazardous or have an unknown impact on aquatic ecosystems when they enter waterways. In 2022 the BBC reported that trace amounts of pharmaceutical compounds are consistently discovered in freshwater systems worldwide. Paracetamol, nicotine, caffeine, epilepsy and diabetes drugs were widely detected in rivers, as reported citing a University of York study.² These residues can lead to unintended ecological consequences, including altering the behaviour and physiology of aquatic species, potentially driving a shift in migratory patterns and influencing the surrounding environments.

Another concern is excessive water consumption. With manufacturing processes being water-intensive, reducing water use and improving recycling and treatment methods is a key need. In a 2022 study published in *El Sevier*, advanced treatment technologies like reverse osmosis and advanced oxidation processes are viable to ensure water released into the environment is free of harmful residues.

Incentives for sustainable practices, such as tax breaks or grants, are being considered by regulatory and governance authorities to push companies towards faster implementation of these practices. Many countries now mandate environmental reporting as part of the annual statements. The European Union's Non-Financial Reporting Directive, for example, requires large companies to publish regular reports on the social and environmental impacts of their activities.

From an economic standpoint, healthcare entities may begin prioritising suppliers with robust sustainability practices, influencing pharmaceutical companies to adopt green manufacturing. As public awareness of climate change grows, reputation management becomes more critical as a concern, due to younger populations' strong impact on a brand's positive visibility.

This becomes even more pronounced in recruitment. Employees today, especially the younger generation, prefer to work for companies that align with their values. Sustainable practices can help companies attract and retain talent.



Emissions control in the healthcare industry

The healthcare manufacturing industry, while instrumental in improving global health outcomes, has concurrently raised significant concerns regarding emissions control. Both the manufacturing processes of drugs and medical devices and their downstream effects after use can result in the release of pollutants into the environment. Europe's healthcare system, for example, contributes up to 8% of greenhouse gas emissions. According to a report by Healthcare Without Harm (HCWH), just six countries in South East Asia (comprising Indonesia, Singapore, Vietnam, Thailand, Philippines, and Malaysia) contribute approximately 63 million metric tonnes¹ of carbon emissions through their healthcare systems. Addressing these concerns is crucial, not just for the environment but also to ensure the continued viability and public trust in this critical industry.

Emissions in the industry can be categorised into three groups: Scope 1, Scope 2, and Scope 3.

While Scope 1 emissions are often the most immediately recognised as they are direct, they are not the primary contributors to total emissions. They consist of all emissions that occur as a result of company-owned and controlled resources, such as heating, fuel, owned vehicles, cooling, and manufacturing emissions.

Scope 2 emissions represent a significant portion of energy consumption in the supply chain, particularly during manufacturing, and consists of indirect emissions via the generation of purchased energy from a utility provider.

Scope 3 emissions, on the other hand, are more subtle and often go unnoticed, leading to unchecked impacts. This is because Scope 3 emissions – by far the most critical — are generally created by third-party players such as logistics, business travel, shipping, waste disposal, office furniture, and retail. It is crucial to set new objectives targeting these categories to reduce the carbon footprint of the pharmaceutical sector, ensuring a better future for our environment.

To additionally understand the impact of emissions, we must break down the various key aspects they entail:

Solvents and Volatile Organic Compounds (VOCs)

Manufacturing processes in this sector often require solvents, which when released, can become sources of Volatile Organic



Compounds (VOCs). VOCs contribute to the formation of ground-level ozone and smog, harmful to human health and a source of exacerbating respiratory diseases such as asthma. Additionally, certain solvents are greenhouse gases, which contribute to global warming and climate change. The long-term impacts of these emissions underscore the necessity of developing cleaner production processes, recycling mechanisms, and advanced treatment methodologies for waste streams.

Environmental Impact of Active Pharmaceutical Ingredients (APIs)

A primary concern in healthcare emissions is the discharge of Active Pharmaceutical Ingredients (APIs) into water systems. Several studies have shown that released APIs can persist in the environment and potentially lead to detrimental effects on ecology and human life. Traces of antibiotics, for instance, discharged into water systems can lead to antibiotic-resistant bacteria, a rapidly emerging global health crisis. Similarly, the release of hormonal substances, like those found in contraceptives, has been linked to disruptions in aquatic species' reproductive processes, which have an adverse effect on climate.

1. <https://healthcaredesignmagazine.com/trends/perspectives/5-steps-for-hospitals-to-improve-energy-efficiency/>

2. <https://www.bbc.com/news/science-environment-60380298>

3. <https://www.astrazeneca.com/media-centre/press-releases/2023/astrazeneca-announces-400-million-investment-in-reforestation-and-biodiversity-in-support-of-climate-action-and-human-health.html>

Waste Management and Incineration

Incineration is a key requirement in the destruction of pharmaceutical and medical waste to ensure complete removal of potentially harmful biological agents or other contaminants. Improperly managed incineration, however, can lead to the release of dioxins, furans, and other harmful pollutants. These substances are recognised as persistent environmental pollutants, and even in minute quantities, can have severe impacts on human health and the ecosystem.

Resource Consumption and Carbon Footprint

The sheer scale of this industry requires vast amounts of resources — water, energy, and raw materials — to be consumed. This translates into a considerable carbon footprint, and as nations and industries worldwide strive to reduce their emissions, pressure is increasing on the industry to innovate and adopt sustainable practices. This involves adopting cleaner energy sources, maximising efficiency in production, and investing in carbon offset projects.

Addressing Concerns through Regulatory and Industry Action

Given the scale and complexity of these concerns, it is vital for government bodies and industry stakeholders to work in tandem. Regulations must be updated to reflect the current understanding of environmental impacts. This may involve setting tighter limits on permissible emissions, mandating the disclosure of emissions data, or incentivising green manufacturing practices. Conversely, the industry must also invest in R&D geared towards sustainable manufacturing.

In the UAE, for example, a number of initiatives is being seen to combat emissions in the industry. Mediclinic, a leading hospital

group, have implemented several to ensure their seven hospitals, which collectively offer more than 950 beds, are carbon-neutral by 2030.² The group aims to produce zero landfill waste in the same timeframe. In scope 1 and the pollution directly emitted by its properties, cooling is a key challenge, comprising approximately 40% of its electricity bills. To counter this, Mediclinic's corporate office in Dubai installed smart thermostats leading to a 20% reduction in cooling and electricity bills. Air conditioning is switched off at night and over weekends. The group also purchases renewable energy, trialling solar panels at two clinics. The extra electricity produced via the panels is passed to the national grid and spillover energy is used on its properties at night.

Earlier this year, Abu Dhabi's Department of Health unveiled its healthcare sustainability objectives, targeting a 20% reduction in carbon emissions by 2030 and aiming to achieve Net Zero emissions by 2050. The plan is centrally focused on three areas: infrastructure, operations, and healthcare waste management. The DoH plans to collaborate with healthcare institutions to promote the adoption of green construction practices, involving the use of sustainable, recyclable, and natural materials for hospital building and upkeep, and a shift towards clean and renewable energy sources.

PureHealth, a UAE healthcare giant, became the region's first health company this July to commit to net zero emissions by 2040 in alignment with Science Based Targets Initiative (SBTi). This target puts them a decade ahead of the deadline by when the world must reach net zero to achieve the Paris Agreement goal of limiting global warming to 1.5°C above pre-industrial levels.³

As the industry continues its pivotal role in global health, it must ensure it is imperative to lead as environmental stewards, and the positive movement by regional healthcare players is a step in the right direction.

1. <https://noharm-europe.org/seasiaroadmaplaunchpr>

2. <https://www.mediclinic.ae/en/corporate/about-mediclinic-middle-east/sustainability/mediclinic-middle-east-and-the-environment.html>

3. <https://www.mediaoffice.abudhabi/en/health/purehealth-sets-net-zero-emissions-target-by-2040/>



Source code: Sustainability Concerns in Procuring Raw Materials

Due to the industry's significant influence on global health and economy, it grapples with myriad sustainability challenges, especially when it comes to sourcing raw materials. Ensuring materials are obtained in a manner respecting environmental, social, and economic factors is paramount. This report aims to shed light on these concerns and their implications for stakeholders, particularly government officials, business decision makers, and industry leaders.

Environmental Concerns

Degradation of natural habitats due to the extraction of raw materials is one of the most pressing — and visible — environmental issues. Acquisition of plant-based compounds can lead to deforestation, loss of biodiversity, and disruption of ecosystems. Additionally, mining activities for obtaining certain minerals can result in habitat destruction, soil erosion, and water pollution. The ecological footprint not only threatens local flora and fauna but has long-term implications on global ecosystems.

Water usage is another key issue. The extraction, processing, and transportation of raw materials consumes vast amounts of water. In regions with considerable water scarcity, these activities exacerbate the challenge, affecting local communities and ecology. Moreover, inefficient water use potentially contaminates local water sources if not properly treated.

Social and Ethical Concerns

The sourcing of raw materials often involves working with communities in resource-rich regions. Without effective engagement and equitable arrangements, these communities run the risk of being displaced or deprived of their traditional livelihoods. This can lead to social tensions, inequalities, and even conflict and corruption. Adding to this is the matter of labour rights; in some regions, workers are subjected to harsh conditions, unfair wages, or even forced labour.

The demand for certain raw materials has sometimes also fuelled illegal trade and exploitation. A key example is the trade of rare plants used in traditional medicines, which are sometimes harvested to the point of endangerment while disregarding the rights and knowledge of indigenous populations.

Economic Implications

Sustainability in sourcing is not just an ethical or environmental issue; it has economic ramifications. Over-reliance on a single source or region for raw materials can pose supply chain risks. Fluctuations in availability, due to reasons ranging from environmental factors to political instability, can lead to volatility in prices, affecting the cost of drug production. This was seen in the manufacturing concerns that arose during the 2020 pandemic, which saw raw material supply slow down due to logistic and



supply chain concerns. Additionally, any reputational damage from unsustainable practices can alienate consumers and investors, impacting market share and stock value.

Regulatory and Compliance Pressures

Government bodies worldwide are becoming more stringent about industrial sustainability practices. Non-compliance with environmental and social regulations can lead to hefty fines, sanctions, and loss of operational licenses. As regulations tighten, industry players must be proactive in adopting sustainable sourcing practices.

The challenges of sustainable sourcing in healthcare are intricate and interlinked. Addressing them requires a holistic approach that considers the environment, society, and economy. By recognising and proactively addressing these concerns, industry leaders can not only safeguard the planet and its inhabitants but also ensure a resilient and sustainable future for the industry. Government officials and business decision-makers meeting during the COP28 sessions and beyond play a pivotal role in fostering collaboration, enacting critical regulations, and driving innovation to pave the way for a more sustainable health future.

The supply chain: Distribution and the environment

The healthcare supply chain is one of the world's biggest focal areas with regard to climate impact, creating a pressing need to understand the nuances surrounding it. A common misunderstanding is that the supply chain is mostly transport and logistics-based. The issue at hand is far more complex and requires a deeper look at its components.

Environmental Footprint of Active Ingredients: Pharmaceutical production can be resource-intensive. Raw materials for medications, such as active pharmaceutical ingredients (APIs), often require precise conditions for synthesis, purification, and storage. Many times this may involve energy-intensive processes, high water usage, and the release of greenhouse gases. Antibiotic production, for example, has specifically come under scrutiny due to the environmental contaminants released in waterways, which can result in antibiotic resistance — one of the leading global health concerns, particularly in Asian countries.

Geographical Risks and Biodiversity: Certain medications rely on natural ingredients sourced from specific regions. These resources can be sensitive to climate fluctuations. An example is the plant *Digitalis purpurea*, used for heart medications, or the bark of the Cinchona tree, a source of quinine for malaria treatments, which have specific geographical and climatic requirements. Climate change, which affects soil quality, precipitation, and humidity patterns, as well as temperature, could threaten the consistent availability of these crucial resources. This not only risks the biodiversity of these regions but also endangers the reliability of drug production and the millions of patients dependent on these medications.

Distribution Vulnerabilities: Distribution is critical to this industry. Medications and vaccines often require specific temperature-controlled environments during transportation. With global temperature patterns becoming increasingly unpredictable, maintaining these environments can be energy-intensive.

Consider the COVID-19 vaccines, many of which demanded ultra-cold storage; any deviation due to environmental factors rendered them ineffective, wasting resources and endangering lives. The importance of resilient distribution, especially as extreme weather events become more frequent, cannot be more underscored.

Resilience along the Chain: Supply chains, while economically efficient, can be disrupted. Climate change has increased extreme weather events including hurricanes, floods, typhoons, cold snaps and droughts. These events can interrupt deliveries by damaging facilities, disrupting power supplies, or creating transportation bottlenecks. The 2011 floods in Thailand, which impacted global supply chains, serve as a stark reminder of such vulnerabilities. For an industry where timely delivery can influence matters of life and death, this can have devastating consequences.

Waste Management and Circular Economy: Waste management is a significant concern, as expired medications and manufacturing by-products have environmental implications. Traditional disposal methods, like incineration, release harmful emissions if not monitored and regulated. Earlier this year, the US' largest medical waste incinerator was fined US\$1 million for improper disposal of biohazardous materials. In addition to the US\$1 million fine, the company will pay an additional US\$750,000 into a fund to complete environmental improvements around its city and affected communities.¹ As governments worldwide clamp down on waste disposal practices, pharmaceutical firms are under pressure to adopt a more circular economy approach. This means rethinking production processes, recycling more, and reducing overall waste.

As the effects of climate change intensify, there is a clear need to reconsider traditional supply chain processes and prioritize sustainability. As the numbers show, it is no longer a matter of corporate responsibility but about ensuring vital medications and healthcare products remain available and effective for those in need while keeping an eye on sustainable impact.

1. <https://www.marylandmatters.org/2023/10/17/south-baltimore-medical-waste-incinerator-will-pay-one-of-largest-environmental-fines-in-state-history-after-improper-disposal/>



The bottom line: Financial Implications of healthcare sustainability as an obstacle

With the urgency of climate change mounting, the financial implications of sustainability in healthcare must be understood if government officials and industry leaders are to find long-term solutions.

One of the first concerns in the shift towards healthcare sustainability is the need for capital investment in green technologies and infrastructure. This includes the adoption of renewable energy sources for manufacturing facilities, upgrading machinery to be energy-efficient, or implementing waste reduction measures. While these initiatives promise long-term returns via reduced operational costs and potential government incentives, they require substantial upfront investments. For many companies, especially smaller enterprises, these costs can be a deterrent, especially when the return is spread over many years and there is a dependency on expensive raw materials.

Another focus is regulatory compliance and incentivisation. Governments have started instituting more stringent regulations for industries, including healthcare manufacturing. Complying with these regulations often necessitates financial outlays, however there's a silver lining. Many governments also offer financial incentives, such as tax breaks or grants, to companies taking substantial steps toward sustainability. These can help mitigate the financial burden of compliance and even provide a

competitive advantage in the market. This leads us to the third consideration that most companies would place at the top of their priority list: Operational efficiencies and long-term savings.

Sustainable practices lead to operational efficiencies, streamlining processes, and potentially reducing the time and resources required to produce goods. In today's environmentally conscious market, consumers and stakeholders also increasingly prefer companies that prioritise clean energy and sustainability. A visible commitment to reducing carbon footprints can enhance a company's brand image, potentially leading to increased market share and customer loyalty.

However, despite the potential advantages, there are always financial obstacles that make businesses hesitant to fully embrace sustainability. Firstly, ROI uncertainty can be daunting. Green technologies evolve rapidly, and what seems like a prudent investment today might become obsolete tomorrow. Secondly, healthcare manufacturing is already heavily regulated. Adding sustainability measures on top of existing compliance requirements has the potential to strain financial and human resources, especially for companies that operate on thin margins. Moreover, while there is a global push for sustainability, not all markets prioritise it equally. For multinational companies, this can mean uneven returns on sustainability investments, depending on the region.



Governing governance: Regulatory, Policy and Stakeholder Implications

When all other areas of business have been measured and prepared for increasing sustainability in healthcare, we are then prepared for the most important operational element in the mix: Regulatory, policy, and stakeholder implications, which play a pivotal role in determining the path forward. Here, we list some of the critical elements to be aware of.

Regulatory Implications

Emission and Waste Standards: Strict standards may be set for emissions and waste products for healthcare manufacturing facilities. This usually encompasses air, water, and solid waste pollutants.

Lifecycle Analysis (LCA): Regulations might mandate LCA for pharmaceutical products, which assess the environmental impacts of a product over its entire lifecycle, particularly those that have been proven to cause disruption such as excess paracetamol, diabetes and other medications which have been seen in water bodies.

Green Chemistry: Regulatory bodies could mandate the use of green chemistry principles in drug synthesis and production, which emphasise reduced waste and non-toxic reagents.

Drug Take-back Programmes: Pharmaceutical companies may be required to establish programmes for collecting and safe disposal of unused or expired medications to prevent environmental contamination. This, despite its visible positive impact, can prove very costly, but also quite difficult to establish a plan for when considering a new drug launch, which may or may not yet have clear lifetime insight.

Policy Implications

Sustainable Practice Incentives: Governments could provide tax breaks, subsidies, or grants to companies that adopt sustainable manufacturing practices.

Research and Development: Policies could prioritise and fund R&D into sustainable drug production methods, alternative raw materials, and eco-friendly packaging.

Eco-labelling: Governments might introduce eco-labelling for pharmaceuticals, indicating the environmental footprint of the product, and thereby allowing consumers to make informed choices.

Supply Chain Accountability: Companies could be held accountable through strong policies for environmental practices in their entire supply chain, encouraging sustainable sourcing of raw materials.



Stakeholder Implications

Patients and Consumers: As awareness grows, patients and consumers may prefer medication from companies known to have sustainable practices.

Healthcare Providers: Doctors, pharmacists, and hospitals might prioritise sustainably produced medications, and can play a role in educating patients about the importance of sustainability in healthcare.

Investors: Sustainable practices can lead to long-term financial gains and reduced risks, making companies adopting such practices more attractive to investors.

Local Communities: Pharmaceutical manufacturing plants can have significant environmental impacts on local communities. With more knowledge and empowerment, these communities might demand stricter environmental standards and practices.

Diagnosing the future

so, what does the future of sustainability in healthcare hold? As **Omnia Health** looks at the overarching topic of this report, we must also look at what comes next. Where do the various pathways of healthcare sustainability take us, based on the decisions currently being discussed at critical events like COP28?

Manufacturing, transport, mobility, and logistics technology is evolving faster than ever, and most are taking environmental feedback and climate-related innovations seriously as part of that process. What is now a vision will fast become a reality, and here we want to consider what that reality will look like.

Sustainable healthcare becomes a consumer norm

The production of medical devices, drugs, and related items will be done in a manner that is environmentally responsible at its heart, socially equitable as part of its mandate, and economically viable as part of its business decisions. This will involve everything from greener production processes to sustainable raw materials sourcing.

Potential investment indicators

Eco-friendly packaging

With the production of single-use plastics being more and more demonised and a reduction in use by consumers aware of their environmental impact, there will be a significant push towards sustainable packaging alternatives, including biodegradable or recyclable materials. In the past, medical packaging was designed for the open-use-dispose dynamic in healthcare. Safety remains the primary packaging goal. Current estimates by TRVST approximate that about 25%

of hospital waste is plastic.¹ With eco-friendly packaging becoming the norm, roughly a quarter of waste in hospitals will be reduced worldwide.

Green chemistry

This involves designing products and processes that reduce or eliminate the use and generation of hazardous substances. In pharmaceuticals, green chemistry could lead to less waste and safer products. The EU Green Chemistry Subsidy programme was launched for this purpose, offering various subsidies and funding programmes under the EGD, to support transitioning into a green economy. In February this year, the European Commission presented its Green Deal Industrial Plan (GDIP) for the net-zero age with an initial investment of US\$270 billion², further providing a benchmark to other countries and regions to follow.

Energy-Efficient Facilities

Manufacturing facilities are being retrofitted or designed from the ground up to minimise energy consumption. An example of this future in the present can be seen with Teva Pharmaceuticals, a key global generic pharmaceutical giant, which recently partnered with Honeywell to optimise energy efficiency. Teva reported a 24% reduction in absolute scope 1 and 2 greenhouse gas emissions compared to 2019, which puts them ahead of schedule to meet their 2025 target of a 25% reduction. Their absolute Scope 3 GHG emissions also reduced by 12% over 2020.³ In August 2023, AstraZeneca struck a deal with Stratkraft, Europe's largest renewable energy producer. The deal will see AstraZeneca purchase 200 gigawatt-hours per year for 10 years, corresponding to approximately 80% of the company's total electricity needs at its research facility in Gothenburg and its manufacturing plant in Södertälje, Sweden.⁴



Sustainable Sourcing

Companies are already ensuring raw materials are sustainably sourced, particularly for medications derived from natural resources. The future is already taking shape, with industry leaders like GSK leading the charge. The company is currently evaluating its supply chain to develop a mitigation plan as a participant in a pilot of science-based targets for nature being managed by the Science Based Targets Network (SBTN). As part of the pilot, GSK has developed sustainable sourcing standards for materials such as lactose, gelatin, palm oil, paper and sugar, used in the company's drugs and inhalers, or as "adjuvants" in vaccines to help create a stronger immune response in people receiving the vaccine.⁵ Many others are used for packaging or in drug testing.

The future of sustainable healthcare is promising. Consumers are increasingly aware and there is a significant demand for sustainable healthcare products, making it not only an environmental imperative but a competitive one, something companies need to bear in mind if they want to be a part of the sustainable lifestyle in the future these consumers are preparing themselves for.

Wastewater Management

As leaders convene at COP28, the growing concerns surrounding waste management in healthcare, especially in the GCC with its increasing drug manufacturing facilities, take center stage. Medical waste, from used needles to expired medicines, when mishandled, can introduce serious health risks. Non-infectious waste piles up in

significant quantities, potentially polluting soil and water. Incorrect disposal of medicines can introduce them into water systems, posing threats to aquatic life, humans, and the broader ecosystem for extended periods. Hospitals and clinics consume enormous amounts of water for sanitation and patient care, straining local water sources. This is particularly troubling in regions like the GCC where fresh water is scarce, and reliance on desalinated water is high. Between 30% to 90% of specific orally taken drugs end up in our rivers and soils, as reported by Euronews.⁶ The call for action at COP28 is clear: to adopt sustainable practices to protect both our environment and public health.

Companies can address wastewater management sustainably by integrating innovative technologies, best practices, and proactive strategies. One approach is source reduction, refining manufacturing processes to minimize waste generation and embracing green chemistry principles. Advanced treatment technologies have also emerged as effective solutions. Membrane Bioreactors (MBRs), which merge conventional activated sludge treatment with membrane liquid-solid separation, ensure pollutants are effectively removed. Another reliable method is the use of activated carbon absorption, known for effectively eliminating organic compounds from wastewater. Investing in on-site wastewater treatment plants gives companies more control over the water's quality and ensures adherence to regulatory benchmarks. Ultimately, adopting a continuous improvement ethos and staying current with the latest technologies and practices will position companies at the vanguard of sustainable wastewater management.



Informa Markets: Charting the Course of Sustainable Healthcare Events

Informa Markets, a global leader in industry events organisation, is committed to sustainability with a deeply ingrained philosophy that extends across every aspect of its operations. From planning to the execution of healthcare events, the company actively seeks ways to minimise ecological footprint and promote environmental stewardship.

This is also represented across its multiple marketing channels such as official event websites, social media platforms, e-mail newsletters, and exhibitor and sales brochures, with the inclusion of external stakeholder engagement to enable sustainable contributions to each event.

Strategies implemented in 2023 featured the creation of a sustainability comms toolkit and well-being communications in delegate halls. But most importantly, it is the introduction of special campaigns that sets Informa Markets apart from others:

Better stands: The Informa BetterStands programme, which is categorised into three noteworthy elements, is designed to unite and encourage exhibitors and their appointed contractors to opt for reusable and recyclable structures. This aims to help event participants move away from disposable, single-use stands that generate more landfill waste and pollution post-event. The programme has become a significant part of Informa's stand regulations and compliance is monitored throughout the event process — from stand plan submission through to onsite review.

Reusable resources: In collaboration with the official general services contractor, Informa Markets acquires carpets from a specialised needlefelt carpet brand that is 100 per cent latex-free and recyclable for its shell scheme and premium sustainable build. Post-show the carpet is collected during breakdown and sent back to the carpet manufacturers to be reused for other events.

Recycling bins for badges and lanyards, refillable water stations, and composting food waste from catering units are some of the many initiatives currently active across Informa Markets healthcare events.

Onsite signage: Each event features onsite signage and QR codes to inform exhibitors and visitors of ways to adopt a sustainable mindset during show dates. Attendees are encouraged to go digital and download a dedicated mobile app for all information needs, thus eliminating the use of paper and plastics. As a bonus, the app also features sustainability tips for attendees, delegates, and exhibitors.

Sustainable content: Business continuity lies at the heart of Informa Markets' sustainability goals and a dedicated conference team works all year round to create thought-provoking and inspirational content in digestible formats for healthcare event attendees. This includes the launch of the Future Health Summit, a segment that brings together movers and shakers from the public and private sectors to spark conversations around industry sustainability, provide guidelines on the way forward, and tips to implement future-ready concepts.

Opportunities for start-ups: The start-up community is a powerful engine that fuels economies across the globe. Each Informa Markets event gives start-ups and their founders a chance to showcase their ideas and products in dedicated areas of the event. Additionally, the Innov8 programme is a special segment that encourages safe and healthy competition between start-ups. This involves pitching concepts to a panel of esteemed judges to not only win funds to fuel their projects but also gain exclusive access to innovation hubs and mentorship programmes.





Conclusion

As we near COP28 and prepare for the world's decision makers of government and industry to arrive and begin our next step towards a better climate for all, we have much to consider in the healthcare industry. Steps are being taken, but are they fast enough? Strong enough? Impactful enough? Or are concerted efforts towards sustainable healthcare simply superficial due to pushback from economic, financial and regulatory stakeholders? Is innovation too slow, or too fast thereby limiting this slow-moving industry's attempts to ramp up climate-friendly initiatives?

COP28 will be the first event in its history to host a dedicated 'Health Day', which will include a climate and health ministerial meeting. The Health Day will be co-hosted by COP28's presidency, the World Health Organization and

the UAE Ministry of Health and Prevention. Supporting the initiative are the governments of Brazil, Egypt, the Netherlands, Sierra Leone, India, Fiji, Germany, Kenya, the United States and the United Kingdom. It is expected to be attended by more than 50 health ministers, joined by their finance and climate counterparts.⁷

The goal of Health Day at COP28 is to build consensus on priority policy and investment in health systems and to get commitments from health and climate funders for a first tranche of money for implementation. The industry is at the precipice of a sustainable future, and we look forward to powerful, impactful decisions from this event and beyond, for patients, healthcare workers, pharmaceutical manufacturers and more.

1. <https://www.trvst.world/waste-recycling/plastic-pollution/single-use-plastic-in-healthcare-and-hospitals/>

2. <https://www.edelmanglobaladvisory.com/insights/european-green-deal-industrial-plan>

3. <https://www.honeywell.com/us/en/press/2023/07/teva-pharmaceuticals-engages-honeywell-to-help-reduce-building-energy-use-and-carbon-impact>

4. <https://www.bloomberg.com/press-releases/2023-08-09/statkraft-as-statkraft-and-astrazeneca-sign-agreement-on-wind-power-delivery>

5. <https://www.greenbiz.com/article/how-global-pharma-gsk-rewriting-supplier-rules-protect-biodiversity>

6. <https://www.euronews.com/next/2023/06/29/sweden-taking-a-stand-against-pharmaceuticals-in-water>

7. <https://www.downtoearth.org.in/blog/climate-change/cop28-say-climate-crisis-think-health-crisis-92318>

Omnia Health

The voice of the global healthcare industry

Bringing you exclusive insights into the latest healthcare trends and developments within hospital management, healthcare tech, medical specialties, clinical advancements and more.

Omnia Health Insights provides C-suite interviews, opinion pieces, in depth reports and daily updates, to keep healthcare professionals informed and up to date.

Get in touch with us today to find out more about how you can get involved and be seen as a leading voice in the healthcare industry.

[Contact Us](#)

Subscribe to the Omnia Health Insights newsletter

For the latest articles, interviews and insights from the healthcare industry, sign up for the Omnia Health Insights newsletter. You will receive a bi-weekly round-up of the healthcare industry's trending stories and developments, delivered straight to your inbox.

[Subscribe](#)