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Plastic

A MESSAGING GUIDE TO ADJUSTING THE LENS ON PLASTICS & HEALTHCARE

"If the Earth were a patient, it would be admitted to intensive care, with a fever, its lung capacity compromised, and its waters, its lifeblood, contaminated." - WHO Director-General Dr. Tedros Adhanom Ghebreyesus

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Purpose of this Guide

This guide is a **living document** that brings together resources, statistics and case studies on the **health impacts of plastics and the overconsumption of plastics in the healthcare sector**. It is very much a work in progress that is intended to equip and expand member's information base on plastics and healthcare.

The aim of this guide is to take a deep dive into understanding the health impacts associated with plastics across the value chain and address the overconsumption of plastics by the healthcare sector with the vision of demonstrating how healthcare systems around the world and in the global south especially can reduce their reliance on single use plastics in the healthcare sector.

This guide has also been culminated in response to the increasingly influential power the plastics industry has been demonstrating in shaping policy and public perception, particularly during the INC negotiations for the Global Plastics Treaty.

During the fourth session of the Intergovernmental Negotiating Committee (INC4); to develop an international legally binding instrument on plastic pollution, including in the marine environment which took place from 23 to 29 April 2024 at the Shaw Center in Ottawa, Canada; delegations were greeted by a barrage of unethical and unidentifiable sponsored advertisements that sung the praises of how "Plastics Saves Lives". This desperate attempt at pro-plastic messaging filled the lobbies of hotels, welcomed tourists at the airport on information boards, transported the people of Ottawa in taxis and stalked the Shaw Centre at every chance whilst critical negotiations for a Global Plastics Treaty happened inside. After much speculation around who was responsible for these ads, [Machinery maker Husky Technologies](#) admitted to sponsoring the advertising campaign.

In desperation to ["remind people and all the delegations of the essential needs of plastic,"](#) these ads included pictures of people with plastic medical masks captioned **"These Plastics Saves Lives"**, The campaign also includes a website, theseplastics.com. The narrative of plastic saves lives is misleading us to believe that we can continue down a path of overproduction. Plastic saves lives is a narrative driven by people who profit from plastic production and not healthcare professionals.

This kind of messaging goes against the scientific evidence that shows that **#PlasticHarmsLives** and disrupts the efforts of civil society organisations (CSOs) and healthcare experts in raising awareness on the issue of plastic in healthcare and how the Global Treaty can address these concerns through a comprehensive phase-out of harmful plastics and production reduction thereof.



Ways to Use this Guide

The information in this guide can be used in the following ways:

1. Help inform organising campaigns/workshops on plastics & healthcare
 2. Talking Points for school/community gatherings
 3. Talking Points for radio shows and other awareness raising activities
 4. Spreading awareness online, or
 5. Engaging with local stakeholders and governments
-

Key Resources for Campaigning on Plastics & Healthcare

Plastics & Healthcare Webinar Recording	English:  Webinar: Adjusting the Lens on Plastics & Healthcare French:  Webinar: Adjusting the Lens on Plastics & Healthcare (French)
Presentations on Plastics & Healthcare	 Presentation Slides Plastics & Healthcare
Social Media Memes on Plastics & Healthcare	 Chemicals in Plastics  Plastics in the Human Body  Plastics Affecting Human Reproduction & Children  Health Impacts to fenceline communities living near Plastic ...
Social Media Graphics on Facts about Plastics & Healthcare	 Fact Check on Single-use Plastics in Healthcare.png  Fact Check on PVC in Healthcare.png  Fact Check on Glove Overconsumption.png  Fact Check on Africa's Healthcare Waste Sector.png



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Plastics and Healthcare.

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the Myths
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I'm here to
save you!



Ingredients:
16 000
different
chemicals



THE MESSAGE

Plastics may contain
a mix of more than **16,000**
different chemicals.

At least 4,200 (or 26%) of these are highly
hazardous to human and environmental
health, meaning **they are officially**
recognised to be toxic, persistent or have
other concerning properties.

Endocrine disrupting chemicals (EDCs) particularly, Bisphenols, Alkylphenols, Perfluorinated Compounds (PFAS), Brominated Flame Retardants (BFRs), Dioxin, Phthalates, UV Stabilizers and Toxic Metals in plastics represent a major concern for human health, because they interfere with the normal functioning of hormone systems, contributing to cancer, diabetes, obesity, cardiovascular problems, reproductive toxicity (including infertility), neurotoxicity, thyroid and immune dysfunction, as well as other metabolic dysfunction.

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I am back again
to tell you how
much I love you!



Whenever you
miss me, just
remember I am
always with you
and in you too!



THE MESSAGE

Research shows that
microplastics have been
found in our **BLOOD,**
BRAIN, LUNGS, KIDNEYS,
PLACENTA, HEART and in
the **TESTICLES.**

There is **NOT** a **SINGLE PLACE** on **PLANET EARTH** where **PLASTIC** cannot be **FOUND**, Including the **HUMAN BODY!** In recent years, microplastics have been documented in all parts of the human lung, in maternal and foetal placental tissues, in human breast milk, in human blood as well as in blood clots in heart, brain, and legs and now even in the testicles of humans and dogs – raising more questions about the potential health impacts of these particles.



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THE MESSAGE

'Toxic chemicals negatively impacting children's brain development have been found in toys made from recycled plastic surveyed in 26 countries spread over the globe, including in Africa' (IPEN, 2017)

Endocrine disrupting chemicals (EDCs) in plastics have multi-generational effects. Exposure to EDCs pose the biggest risk to pregnant women and the foetus during pregnancy to young children, to people going through puberty when hormones are also rapidly changing.

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THE MESSAGE

During plastic production, emissions are released that can impair the nervous system, causing reproductive and developmental problems and respiratory diseases, especially for Fenceline Communities located close to production sites and production facility employees.

Many of plastic's worst impacts, such as greenhouse gas emissions and toxic air emissions, occur primarily in the production phase. If plastic production were a country, it would be the fifth largest greenhouse gas emitter on Earth, contributing negatively to the Climate Crisis and leaving fenceline communities to pay the PRICE! PLASTIC PRODUCTION is concentrated in poor communities and communities of colour, and residents face elevated health threats. The precursor chemicals for plastics are derived from fossil fuels and petrochemicals and these precursor chemicals come from poorer communities of colour.



The Health Impacts of Plastic

Plastic poses a critical threat to both human and environmental health, a situation that is set to worsen with the planned increase in plastics production unless global action is taken.

- ★ [According to the PlastChem Project](#), **plastics may contain a mix of over 16,000 different chemicals, with at least 4,200 (26%) being highly hazardous**. These chemicals, which are toxic and persistent, can leach into our food, homes, and the environment, adversely affecting health and ecosystems.
- ★ The entire lifecycle of plastics—from production to disposal—exposes humans and the environment to harmful additives, including carcinogens, neurotoxins, and endocrine disruptors, posing significant risks to patients, communities, workers, and ecosystems.
- ★ **Recent research has highlighted the alarming extent of microplastic contamination, finding microplastics in [human lungs](#), [placental tissues](#), [breast milk](#), [human blood](#), and even in [blood clots in the heart, brain, and legs](#).**
- ★ [A study published in May 2024](#) revealed that microplastics can accumulate in the testicles of humans and dogs, raising concerns about their potential health impacts.
- ★ Vulnerable populations, such as fetuses, newborns, and young children, are particularly at risk from exposure to these hazardous chemicals. The unequal distribution of the worst impacts of plastics' production and disposal means that under-resourced communities bear the brunt of the pollution. **For instance, [a 2017 IPEN study found toxic flame retardants in children's toys](#) made from recycled electronic waste, which can harm the nervous, hormonal, and reproductive systems, especially in children.**
- ★ Acknowledging these dangers, the WHO and Member States in the World Health Assembly Resolution 76.17 (2023) recognize the potential health and environmental impacts of plastic production, consumption, and disposal, including the release of microplastics and related chemicals into the environment.



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Plastic in the Healthcare Sector

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FACT CHECK

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FACT CHECK ON SINGLE-USE PLASTICS in the HEALTHCARE SECTOR

- ✦ In global plastics audits, single-use plastic makes up 22-83% of healthcare waste, largely driven by perception of infection prevention.

Reusable alternatives & sustainable practices have been successfully integrated into healthcare facilities in the Global South such as:

- ✦ **Sustainable practices:** reusable medical gowns, drinking stations, reusable containers & utensils in hospital cafeterias, plastic alternatives in patient kits, paper straw alternatives for clinical needs, alternative bin liners & returning excess packaging.
- ✦ **Effective waste management:** source segregation, biodigesters for organic waste, recycling, regular waste audits followed by Green Hospital Committee policy reviews.

The healthcare sector generates significant amounts of single-use and toxic plastics, contributing to substantial plastic waste.

- ★ In Europe, it is estimated that 36% of healthcare waste consists of plastics, with 42% of this plastic waste being incinerated, causing climate change and environmental impacts.
- ★ Global audits reveal that plastic comprises 22% to 83% of healthcare waste streams, varying by region, facility, and department.
- ★ The COVID-19 pandemic exacerbated this issue, as the use of personal protective equipment (PPE) and single-use materials surged, leading to over eight million tons of pandemic-associated plastic waste globally, with over 25,000 tons entering the oceans.
- ★ Most of this plastic waste originates from medical waste generated by hospitals.



- ★ Plastics have become indispensable in healthcare due to their low cost, ease of manufacturing, and a lack of awareness about their health impacts. This has led to overuse, even in situations where they are unnecessary. The shift towards single-use medical devices has further driven the increase in plastic usage, contributing significantly to healthcare waste streams.
- ★ **However, many reusable alternatives exist that can replace single-use plastics, often with better performance.** The perception that single-use plastics improve infection prevention is being challenged by infection preventionists. For instance, a [Journal of the American Medical Association](#) article states that *"For certain select medical devices, single-use disposability may be the best solution, but broad-scale, unfettered, and irrational adoption of disposable items in the name of infection prevention is harmful, unsustainable, and unacceptable."* The bottom-line is that medical plastics contain toxic additives, contribute to greenhouse gas emissions, and pose health threats akin to other plastics.



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The Toxicity of PVC in Healthcare

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FACT CHECK ON PVC in the HEALTHCARE SECTOR.

- ★ PVC represents 26% of medical devices globally & is toxic throughout its lifecycle, particularly towards vulnerable infants because of the leaching of toxic plasticisers during medical use which can have lifelong health impacts.

- ★ Policy-makers, Manufacturers & Healthcare providers can collectively phase out PVC in the healthcare sector, increase chemical transparency & public information disclosure & focus on PVC-free innovation, such as in respiratory masks, tubing, food packaging, examination gloves, IV bags, hospital flooring and blood bags which eliminates the need for harmful plasticisers.

Polyvinyl chloride (PVC) plastic, which represents 26% of medical devices globally, poses significant risks throughout its entire lifecycle, from production to healthcare use and disposal.

- ★ During medical treatments, toxic plasticisers such as diethylhexyl phthalate (DEHP) can leach from PVC medical devices, exposing vulnerable patients.
- ★ Plasticisers, which can constitute up to 40% of a PVC product's weight, have been shown to leach from medical devices, leading to direct patient exposure.
- ★ **Government agencies have concluded that particularly infants in neonatal intensive care units, are likely exposed to unsafe amounts of DEHP.** This is especially dangerous for infants and unborn children due to their developing systems and limited ability to metabolise chemicals.



PVC is toxic throughout its Lifecycle!

- ★ PVC is notably toxic not only due to these leaching hazards but also because of the hazardous chemicals used and emitted during its production and disposal.
- ★ The production of PVC requires the use of toxic substances and generates pollution throughout its lifecycle.
- ★ [The Health Building Network \(HBN\)](#) has found that all PVC resins are produced using toxic technologies.
- ★ Factory workers and those living near production sites face exposure risks, with [a study in Italy](#) indicating higher mortality rates from liver cancer and pulmonary diseases among exposed workers.
- ★ [The disposal of PVC](#) primarily through incineration releases chlorinated dioxins and other pollutants, making it one of the most hazardous polymers. Recycling PVC is also problematic as it contaminates other polymers, hindering a non-toxic circular economy. Environmental and health impacts from PVC production and disposal highlight the need for non-PVC alternatives in healthcare.



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Overconsumption of Non-Sterile Disposable Plastic Gloves in Healthcare

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FACT CHECK ON GLOVE OVERCONSUMPTION in the HEALTHCARE SECTOR.



Since the onset of COVID-19 about 360 billion single-use nitrile gloves were produced in 2020 and have been identified as priority products to be replaced with more sustainable alternatives!



Studies show that gloves are used in 62% of cases where they're not required.



Hand hygiene is key in most cases & Non-sterile gloves only need to be used if in contact with: blood, body fluids, broken skin or mucous membranes, patients under transmission-based precautions & harmful chemicals.

Non-sterile disposable gloves are commonly used in healthcare settings to protect both patients and healthcare workers from potential exposure to infectious agents, chemicals, and other hazardous materials. These gloves are typically made of materials like latex, nitrile, or vinyl, and are intended for single-use only.

- ★ The use of non-sterile disposable gloves in healthcare has seen a significant increase in recent years.
- ★ Globally, it is estimated that **360 billion nitrile gloves were produced in 2020, with the healthcare sector being a major consumer.**

However, [studies have shown](#) that gloves are often used in situations where they are not necessary, and that hand hygiene through proper handwashing is a more effective way to prevent the spread of infection in many cases.



- ★ **It is estimated that gloves are used unnecessarily in 62% of cases where they are employed,** and improper use of non-sterile gloves has been linked to cross-contamination and outbreaks of infection in healthcare settings.
- ★ The overuse of non-sterile disposable gloves in healthcare has significant environmental implications, as these gloves are typically made from fossil fuels and contribute to the growing problem of medical waste.
- ★ The COVID-19 pandemic highlighted the need for more sustainable practices in healthcare, and [the Sustainable Procurement Index for Health](#) is a tool that can help healthcare facilities improve their environmental and social record when it comes to the procurement of medical supplies like gloves.

Taking Action for Plastic-Free Healthcare

Hospital Waste Audits

Hospital waste audits are crucial in understanding the scale and nature of plastic consumption in healthcare settings, where plastic can constitute up to [three-quarters of the waste generated](#). The profiles of this waste can vary significantly across different environments, making audits essential for tailored solutions.

By identifying the types and quantities of plastic waste, audits reveal how single-use plastics, often intended to improve hygiene, can sometimes undermine it. [Results from Healthcare without Harm \(HCWH\) Europe's hospital waste audits](#) have found that **45% of general healthcare waste is plastic with the wipes, gloves and nappies constituting the highest percentage of the plastic.**

Additionally, these audits highlight opportunities to reduce plastic consumption and save money by changing products and practices. This proactive approach can help the Global South avoid the environmental pitfalls experienced by wealthier nations, particularly as many medical textiles have transitioned from natural fibres to plastic-based materials.

[Some common plastics in the healthcare sector](#), their hazards and examples of where they're found:

- ★ **Phthalates and bisphenol A:** Food Trays with Plastic Wrap. Contain endocrine disruptors.
- ★ **PET (Polyethylene Terephthalate):** Common in drinks bottles. Lifecycle hazards include toxicity from monomers, impacts from extraction, and energy consumption.
- ★ **HDPE (High-Density Polyethylene):** Common in milk bottles and IV fluids extraction in ecological sensitive areas (e.g., the Arctic). Has significant impacts.
- ★ **PVC (Polyvinyl Chloride):** Significant hazards over the entire lifecycle (e.g., the basic building block is a human carcinogen). Almost never recycled and found in wiring, guttering, and IV lines.
- ★ **LDPE (Low-Density Polyethylene):** Found in traditional plastic bags. Dispersing in the environment can have huge impacts.
- ★ **PP (Polypropylene):** Found in bottle caps and water pipes. Toxic in the extraction phase (fossil fuels) like all plastics.
- ★ **PS (Polystyrene):** Used in solid plastics and many other forms. Its styrene monomer is toxic and non-recyclable.



[Health Care Without Harm \(HCWH\)](#) have compiled several tried & tested resources for conducting a waste audit in the healthcare sector.

Here are their summarised suggestions:

1. **Establish the audit scope and timeline:** Determine the representative period, such as one week, over which the audit will be conducted.
2. **[Gather waste tracking tools](#):** Utilise the standardised set of tools recommended by HCWH including a baseline assessment tool, a good practice checklist, and various trackers to monitor waste generation, treatment, and disposal.
3. **Measure and characterise the waste:** Directly measure and categorise the different waste streams generated within the facility, such as general waste, infectious waste, sharps, and recyclables.
4. **Assess waste segregation, storage, and disposal practices:** Evaluate the facility's current waste management procedures using the good practice checklist.
5. **Analyse the data:** Review the collected data to identify opportunities for improving waste management, such as increasing recycling, optimising waste treatment, or reducing unnecessary waste generation.

Ultimately, [as stated by HCWH](#), “Audits are the single most important means for a facility to know the status of its waste management system, to identify current gaps in waste management practices and to determine how to improve practices.”

Innovative solutions to reducing plastic use in the healthcare sector

Phasing out PVC in Healthcare

Polyvinyl chloride (PVC) represents about a quarter of medical devices and has proven toxicity throughout its lifecycle, making it imperative to phase out its use in healthcare. Positively, several studies have already encouraged a phase-out of PVC in healthcare and offered recommendations for alternatives.

Health Care Without Harm PVC-free alternatives:

- ★ Silicone, polyolefins, polyethylene, polypropylene, and polyurethane offer a more precautionary approach to PVC.
- ★ **Hospitals in Latin America, like [Hospital Universitario Fundación Valle de Lili in Colombia](#) , have successfully replaced disposable PVC face masks with 100% silicone-based alternatives, which are reusable up to 100 times**, demonstrating the viability of PVC alternatives.
- ★ PVC-free IV bags made from polyethylene or polypropylene, and glass IV containers in maternity and neonatal areas, provide safer options.
- ★ Alternatives to PVC flooring, furnishings, wall coverings, and various hospital supplies include rubber and linoleum, which are already in use worldwide.
- ★ While PVC-free blood bags are being developed, PVC blood bags are still prevalent due to their ability to store red blood cells for extended periods.

[The Global Minimum Transparency Standard \(GMTS\)](#) enables companies to disclose chemicals in their materials and products, ensuring stakeholders have access to information about toxic ingredients throughout the lifecycle of these products.

[Policy makers, manufacturers, and healthcare providers](#) each play critical roles in transitioning away from PVC. By working together, these stakeholders can reduce PVC use in healthcare, promoting safer and more sustainable alternatives.

- ★ Policy makers should enforce PVC restrictions and support PVC-free product development.
- ★ Manufacturers need to substitute harmful substances, increase transparency, and focus on innovation.



- ★ Healthcare providers can influence market supply by adopting PVC-free procurement criteria and educating staff on PVC's environmental impacts.

Reducing Disposable Gloves

- ★ Hospitals can significantly reduce their use of disposable gloves by being more selective about when they are truly necessary.
- ★ **According to the Royal College of Nursing, in most cases of core nursing activities, proper hand hygiene through handwashing is the key to preventing the spread of infection, not the use of gloves .**
- ★ Therefore, gloves are not required for routine patient care activities such as taking blood pressure, bathing patients, or administering oral medications.
- ★ Gloves should only be used when there is a risk of contact with blood, body fluids, broken skin, mucous membranes, or harmful chemicals, including cytotoxic medications .
- ★ By reserving glove use for these specific situations and prioritising hand hygiene in other cases, hospitals can cut down on unnecessary disposable glove consumption and the associated environmental impacts.

Successful Global South Case Studies

Waste audits conducted in partnership with Healthcare without Harm (HCWH) across several South-East Asian hospitals revealed that plastic waste constituted 40-70% of the total waste. A significant portion of this plastic waste lacked labelling, complicating recycling efforts and the consideration of safer alternatives. Moreover, 40-80% of the items did not have a manufacturer's name, hindering traceability and accountability.

These findings prompted the hospitals to take several actions:

1. **avoiding plastic use,**
2. **finding alternatives to reduce waste,**
3. **segregating waste at the source to recycle and repurpose plastics, and**
4. **communicating with manufacturers and other healthcare providers to reduce dependence on plastic.**

Further information on actions taken by individual hospitals towards plastic-free healthcare are detailed below.

Alabang Medical Clinic (Philippines)

[Alabang Medical Clinic](#) has implemented several effective strategies to reduce waste and enhance sustainability.

These efforts focus on:

1. Waste segregation
2. Procurement practices
3. Increasing accountability in waste management.

Their Strategies for Waste Reduction:

- Segregation at Source
- Proper Procurement Practices
- Tagging Collected Waste
- Installing Drinking Stations
- Phase-out of Single-Use Utensils
- Optimising Garbage Bin Sizes and Placements
- Weighing Generated Waste
- Hospital Waste Management Committee
- Waste Management Manual
- Policies on Plastic Use
- Supplier Qualification Review
- Employee Orientation and Advocacy



- Material Recovery Facility Renovation
- Continuous Monitoring and Improvement
- Increasing Awareness
- Promoting Alternatives to Plastics

Mary Johnston Hospital (Philippines)

[Mary Johnston Hospital's waste audit](#) resulted in several impactful waste reduction measures.

These efforts focused on:

1. Waste segregation
2. Equipping & orienting staff
3. Procurement policies
4. Incentivizing employees for waste reduction efforts

Their Strategies for Waste Reduction:

- Segregation at Source
- Equipping Housekeeping with Tongs, Reusable Gloves & Masks
- Reviewing Waste Management & Procurement Policies
- Re-orientating Employees on Proper Waste Management
- Incentivizing Proper Waste Segregation
- Strengthening the Waste Management Committee
- Providing Reusable Containers in the Cafeteria
- Replacing Plastic in Patient Kits with Sustainable Alternatives
- Conducting Regular Waste Audits

St. Paul Hospital Cavite (Philippines)

[Results of St. Paul Hospital Cavite's waste audit](#) fueled key policies towards waste diversion and recyclables collection, leading to higher recycling income.

These efforts focused on:

1. Policies to reduce single-use plastic
2. Promoting reusable items
3. Testing cloth diapers in the NICU
4. Procurement policies

Their Strategies for Waste Reduction:

- Distributing Reusable Stainless Tumblers to Staff
- Integrating Waste Management into Employee Orientation
- Installing Water Stations



- Purchasing Manual Baling Machine
- Reducing Plastic Bottles in the Cafeteria
- Take-back Agreements with Hemodialysis Suppliers
- Staff Engagement
- Regular Audits

Universitas Gadjah Mada Academic Hospital (Indonesia)

[Universitas Gadjah Mada Academic Hospital achieved significant progress in reducing plastic waste](#) by implementing targeted policy interventions and activities based on the results of their waste audit.

These efforts focused on:

1. Limiting single-use plastic
2. Promoting alternatives like cloth & reusable bags
3. Educating employees & patients
4. Waste segregation

Their Strategies for Waste Reduction:

- Developed a Green Hospitals Committee
- Strengthened their Waste Management Program
- Segregation at Source
- Eliminating Plastic Straws & Bottles at Meetings
- Encouraging Reusable Materials
- Procuring a Biodigester
- Installing Water Stations
- Reducing Plastic Packaging
- Replacing Plastic Bin Liners
- Conducting Regular Waste Audits to Update Waste Management system

Tribhuvan University Teaching Hospital (Nepal)

[The case study of Tribhuvan University Teaching Hospital \(TUTH\)](#) in Nepal highlights the successful implementation of a healthcare waste management (HCWM) system supported by HECAF 360, Health Care Without Harm (HCWH), and the World Health Organisation (WHO) Nepal.

Their efforts focused on:

1. Waste segregation
2. Proper waste treatment & disposal
3. Resource efficiency & circular economy principles



Their Strategies for Waste Reduction:

- Waste Segregation at the Source
- Installing a Bidigester
- Autoclaving Infectious Waste
- Selling Biogas & Recyclables to Offset Costs

Plastics & Healthcare: The African Perspective

The African Landscape of Plastic & Healthcare

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FACT CHECK ON AFRICA'S HEALTHCARE WASTE SECTOR.

- ✦ Africa's 67,740 health facilities produced 282,447 tonnes of waste (2015).
- ✦ Incineration is the most commonly applied method for medical waste treatment in Africa, producing toxic emissions that pose significant health risks.

- ✦ 79 Global Green & Healthy Hospitals across Africa are working towards reducing, treating and safely disposing of healthcare waste.
- ✦ A variety of non-burn technologies such as autoclaving, recycling and bio digesting solid waste, are available to avoid incineration & methane emissions.

In healthcare sectors across Africa, there is a prevalent issue of over-reliance on plastics, leading to significant waste generation. These plastics are used to deliver medical services, encompassing syringes, IV bags, surgical gloves, and pharmaceutical packaging.

However, this reliance has resulted in substantial plastic waste, exacerbating challenges in waste management within healthcare facilities. **Due to limited alternatives and inadequate infrastructure, many hospitals resort to incineration as the primary method of disposing of medical waste, including plastics.** This practice not only contributes to harmful emissions like dioxins and furans but also poses environmental and public health risks.



The unique African perspective on plastics in healthcare is shaped by diverse healthcare landscapes marked by disparities in access, resources, and infrastructure. In rural and under-resourced areas, healthcare facilities often struggle with waste management due to financial constraints and logistical challenges. **Disposal methods such as open burning or landfilling are common, despite their detrimental effects on the environment and human health.**

Despite these challenges, there are opportunities for progress such as:

- ★ Increasing **awareness about the environmental impact of plastic pollution** and advocating for sustainable waste management practices can spur innovation and investment in alternatives to incineration.
- ★ Initiatives promoting recycling, reuse, and the adoption of non-incineration technologies like **autoclaving and mechanical shredding** offer promising avenues for reducing plastic waste in healthcare while ensuring the accessibility and affordability of medical services across Africa.
- ★ **Collaborative efforts with international organisations and local stakeholders** will be essential in developing tailored solutions that address Africa's healthcare challenges while advancing sustainable development goals.

Inspiration may be drawn from several successful African case studies detailed below:

West Africa |

Background:

[Efforts to combat the 2015 Ebola outbreak in West Africa saw the deployment of an autoclave design](#) to ensure the environmentally sustainable treatment of infectious waste with assistance from the United Nations Development Program (UNDP) and Global Environment Fund (GEF).

Implementation:

- ★ Unlike traditional methods, which involve burning waste in barrels or using low-tech incinerators that emit pollutants and create toxic ash, the new autoclaves use high-temperature and pressure steam to disinfect waste without producing pollutants.
- ★ This method significantly reduces the carbon footprint compared to burning or incinerating waste.
- ★ The autoclaves require only water and electrical power, making them a more sustainable option for managing the vast amounts of infectious waste generated during Ebola treatment.



- ★ Designed to withstand tough conditions in Africa, the autoclaves feature robust mechanical controls and come equipped with a metal drum and trolley for safe and efficient waste handling.

Outcomes:

- ★ The initial installation of two autoclaves in Ebola Treatment Units (ETUs) in Sierra Leone had been successful, with an additional eight units installed in February 2015 .
- ★ In total, 30 autoclaves were distributed across the most affected countries, including Liberia and Guinea.
- ★ Post-outbreak, these autoclaves will be relocated to hospitals to continue treating healthcare waste, thereby strengthening the healthcare systems in these regions for years to come.
- ★ Starting in early 2015, this initiative expanded with a new GEF-funded project to disseminate non-incineration waste treatment technologies in Ghana, Madagascar, Tanzania, and Zambia.

South Africa |

Pholosong Hospital

[The project at Pholosong Hospital in Brakpan, Gauteng, South Africa](#) aims to significantly reduce landfill waste and greenhouse gas emissions. Adopted as part of [the Global Green and Healthy Hospital](#) goals under waste management in September 2019, the initiative promotes zero-waste-to-landfill practices.

Background:

- ★ Pholosong Hospital serves a population of 1.2 million with key health equity concerns including high unemployment, lack of education, and inadequate municipal services such as poor sanitation.
- ★ The project addresses the high volume of waste generated, which previously contributed to pollution, especially during windy seasons.
- ★ Through this initiative, the hospital aims to protect the environment, enhance community health, and reduce energy consumption and carbon emissions.

Implementation:

- ★ Began with a motivational letter to management, leading to the approval by the CEO.
- ★ Key stakeholders, including the medical manager, clinical support manager, and environmental health team, collaborated to ensure the project's success.
- ★ Training staff and service providers fostered a positive recycling culture within the facility.



- ★ The project, which took approximately four months to implement, involves daily monitoring of waste sorting and annual reviews.

Outcomes:

- ★ The initiative has resulted in a 47% reduction in skip bins collected, from six to three per week, with the service provider receiving around R4582 (\$277.32) monthly from recycled waste.
- ★ Despite challenges like billing issues and lack of proper waste storage, the hospital has managed to reduce general waste, improve community morale, and engage more community members in recycling efforts.
- ★ Future steps include piloting recycling bins by waste type, continuous staff training, and revising procurement policies to reduce non-recyclable items entering the waste stream.

George Hospital

Background:

The focus of this project was the application of the [‘Proximity Principle of Waste Management’](#). The transition from offsite and outsourced to onsite treatment of infectious waste at [George Hospital in the Western Cape, South Africa](#), has significantly reduced the hospital’s carbon footprint and operational costs.

Implementation:

- ★ Installation of a Newster NW50 steriliser so the hospital can treat hazardous waste through mechanical and microwave technology, enabling safe disposal in local landfills and reducing emissions from incineration.
- ★ The steriliser processes waste in 25-minute cycles and ensures treated waste is non-recognizable and harmless, minimising injury risk and environmental contamination.
- ★ Previously, the hospital had to transport healthcare risk waste five times per week to a plant, 450 kilometres away, contributing to high emissions and costs.

Outcomes:

- ★ By treating waste onsite, George Hospital has cut transport emissions by 99%, saving 254,000 kilograms of CO₂ annually and reducing waste volume by 75%.
- ★ The project has resulted in a 45% reduction in operational costs and has supported local economic development by employing two waste operators and a local supplier for maintenance.
- ★ Despite initial challenges, including COVID-19 related delays and issues with waste segregation, the hospital successfully commissioned the unit in August 2020.



- ★ The success of this project has spurred interest from other hospitals, with Newster technology being adopted in six additional hospitals in the Western Cape, and plans for further expansion by the provincial health department.

Ghana |

Background:

[The installation of autoclaves in hospitals across Ghana](#) in 2018 was a significant step towards improving healthcare waste management (HCWM) and reducing the environmental impact of medical waste. This is part of a Medical Waste Project being coordinated by HCWH, UNEP and the World Health Organisation (WHO).

Outcomes:

- ★ The project has seen the successful installation of autoclaves in multiple healthcare facilities, enabling the proper treatment and disposal of infectious waste.
- ★ This not only reduces the environmental burden but also helps to ensure the safety of healthcare workers and the surrounding communities.
- ★ Alongside the autoclaves, the initiative has also emphasised the importance of proper waste segregation, with the use of appropriate technologies playing a crucial role in minimising exposure to health risks and improving overall public health.
- ★ The project's focus on sustainable HCWM practices, including the incorporation of resource-efficient and circular economy principles, demonstrates a holistic approach to addressing the environmental challenges posed by healthcare waste.

Tanzania |

Background:

[In Bagamoyo District Hospital, Tanzania](#), steam-based disinfection has replaced traditional incineration for medical waste disposal since October 2008, marking a significant shift toward safer and more sustainable healthcare waste management practices in East Africa.

Implementation:

- ★ This approach, utilising an autoclave and shredder, ensures that medical waste is rendered harmless before disposal, avoiding the emission of toxic chemicals such as dioxins and furans commonly associated with incineration.
- ★ Collaborative effort involving the Tanzanian Ministry of Health, UNDP, GEF, local NGOs like AGENDA, and dedicated hospital staff, all pivotal in demonstrating the feasibility and



efficacy of this innovative waste treatment system.

Outcomes:

- ★ The success of this project underscores its replicability and scalability across Africa, supported by rigorous efficacy testing and minimal maintenance issues encountered during implementation.
- ★ The initiative not only addresses environmental concerns but also enhances public health by ensuring safe handling and disposal of infectious waste.
- ★ Looking forward, ongoing research funded by the UNDP/GEF project at the University of Dar es Salaam aims to refine and improve upon the existing system, anticipating broader adoption of non-incineration technologies in healthcare facilities across the region and beyond.

Considerations for Negotiators of the Global Plastics Treaty on Plastics & Healthcare

Considerations for Negotiators Supported by Health Care Organizations

[Health Care Without Harm](#), [Health Professionals Worldwide](#), and the [World Health Organization \(WHO\)](#) emphasise several key considerations for negotiators. The WHO offers numerous resources to assist with treaty implementation, including guidance for medical product registration, risk assessment expertise for chemicals of concern, waste management in the health sector and beyond, and various sustainability initiatives in the healthcare supply chain. Notable initiatives include the [Alliance for Action on Climate Change and Health \(ATACH\)](#) and the [WHO Framework Convention on Tobacco Control \(WHO FTC\)](#). These organisations and WHO member states advocate for a global approach to addressing plastic pollution, particularly its known or potential adverse effects on human health.

Prioritising Transparency and Health Sector Considerations

- ★ The Global Plastics Treaty must prioritise transparency by establishing a globally **harmonised information system to identify and regulate toxic and hazardous chemicals, monomers, oligomers, and polymers of concern.**
- ★ This system should support the **immediate ban or gradual phaseout of harmful substances**, encompassing production volumes, exports, and imports.
- ★ Currently, the lack of comprehensive product ingredient information hinders efforts to transition to reuse and recycling, move to safer alternatives, and expedite the redesign and detoxification of plastic products.
- ★ Ensuring traceability of chemical information linked to individual materials and products throughout their life cycles is crucial.
- ★ **Special consideration should be given to the health sector, rejecting blanket exemptions.** Such exemptions are inconsistent with the health sector's mission and inhibit innovation in plastics reduction, reuse, and redesign. Instead, WHO recommends prioritising continued affordable access to medicines, medical devices, and health services while reducing plastic use and pollution. This includes allowing additional time to find and obtain regulatory approval for non-regrettable, affordable, and accessible alternatives that meet clinical safety, efficacy, and quality standards. Essential uses of plastics in the health sector can often be detoxified and designed for reuse, while many non-essential uses, including



non-medical applications like maintenance, food, interiors, and offices, should be eliminated.

Conclusion

This guide was compiled in an effort to give much needed attention to the growing health impacts that plastics have had on the lives and livelihoods of people and has carefully demonstrated that plastics in the healthcare sector can be reduced even in the most fragile systems in the Global South and Africa and can pave the way for further cost savings in these systems without risking infection prevention and care of patients.

The guide concludes by acknowledging that plastic pollution is a global health threat and that the health of people and ecosystems must be central to the Plastics Treaty.

As world leaders head into what is to be the **last round (INC-5) of negotiations for a legally binding GLOBAL PLASTICS TREATY**, it is vital that they pay heed to the [demands of of health professionals globally which include:](#)

- No blanket exemption for the health sector but instead special consideration.
- A just and equitable Treaty that respects human rights.
- Limits on the production of plastics.
- Prioritises detoxification.
- Ensures transparency of information for plastic products and materials.
- Consider the full life cycle of plastics.
- Addresses unnecessary plastic products including many single use plastics.