

Supporting information and Resources on Plastics



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<p>Selected case studies and guidance documents on plastic reduction and detoxification in the health sector</p>	

- [Report by the Director-General](#) of the World Health Organization, both on the “the impact of chemicals, waste and pollution on human health”:
- [The impact of chemicals, waste and pollution on human health](#) (WHO)
- [Climate change, pollution and health](#) (WHO)
- Global plastic pollution and use has grown exponentially since the 1950s, with present production of about 430 million metric tons of plastic each year. Production is set to triple by 2026 if “business-as- usual” continues, with heavy annual social and environmental costs linked to plastic pollution ranging from US\$ 300 billion to US\$ 600 billion per year. (WHO)
- There are many intersections between plastics and health that are relevant to the development of the instrument on plastic pollution. Health risks from plastics exist at each stage of the plastics’ life cycle, from production , use and recycling to disposal. Use of petrochemicals in the manufacture of plastics contributes to climate change and through that has wider impacts on human health. The increasing use of micro- and nanoplastics fibers and particles in consumer products, breakdown products from plastic products, as well as the presence of plastic related materials in humans and other biota is a growing concern. The addition of chemicals, such as so-called forever chemicals and endocrine disruptors, added to plastics to confer specific properties may themselves be harmful to health and add to the complexity of ensuring the safety of plastics over their life cycle. Plastic waste in the environment can have serious impacts on drainage and sanitation, and air quality if burned, which is commonplace in many low- and middle-income countries. Importantly, many gaps remain in the current scientific knowledge of the health impacts of different types of plastics and added chemicals and their breakdown in the environment. (WHO)
- WHO recognizes that plastics have a critical role in health care and are used in composition of products of a wide range of health care needs including packaging, infection prevention and control, diagnostics, surgical interventions and assistive products, to name a few. Ensuring

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affordable access to these health products is critical for achieving primary health care and universal health coverage goals. Product design, procurement, use and waste management practices relating to plastics in healthcare are particularly important; and innovation of products and practices to reduce the harm from use and disposal is essential. Replacement of non-essential plastic will be an increasingly important part of prompting the sustainable use of plastics, and of decreasing plastic pollution in the health sector. ([WHO](#))

Plastics in health care

- [Sounding the alarm about disposable plastic in the healthcare industry](#)
- [Infection prevention, planetary health, and single use plastics.](#)
- [Plastic Smart Hospitals Report](#)
- [Key actions to reduce greenhouse gas emissions by US hospitals and Health Systems](#)
-including reducing single-use plastics
- [Measuring and reducing plastics in the health sector](#) (HCWH, 2021)

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- Studies continue to show that vulnerable infants and children are exposed to high levels of harmful substances during medical procedures (HCWH, 2021).
- Health care represents almost 10% of the global economy and will continue to grow if it is to provide equitable access to health care to the growing population worldwide.
- All of that activity in health care generates an enormous amount of waste. One example: Worldwide, an estimated 16 billion injections are administered every year.
- Based on HCWH audit data, plastic makes up between 22% to 83% of the health care waste stream, depending on region, facility and department.
- Globally, annual use of plastics in healthcare was recently estimated at 15 million tonnes. This represents a small but still significant part of overall plastics consumption. It also comes with some challenges which are particular to healthcare, in particular the management of contaminated waste. Across Europe, it's estimated that 36% of healthcare waste is plastics. And critically, 42% of healthcare plastic waste is incinerated, with associated climate change and environmental impacts.
- As a result of COVID, the use of personal protective equipment expanded rapidly, leading to vastly increased plastic waste.
- The increase in plastics use is driven in part by a shift toward single-use medical devices. Plastics, particularly single use plastics, represent a substantial percentage of healthcare waste streams.¹¹
- Medical devices used in NICU: The main source of plasticisers' exposure of newborns
- Protecting health through Health Care Waste Management
- Are medical devices containing DEHP-plasticized PVC or other plasticizers safe for neonates and other groups possibly at risk? (European Commission)
- The nexus between climate change, ecosystem services and human health: Towards a conceptual framework

Plastics and health

- Breathing plastic: The Health Impacts of Invisible Plastics in the Air (CIEL)
- Babies vs Plastics (earthday.org)
- Outside the Safe Operating Space of the Planetary Boundary for Novel Entities
- Opinion: Pete Myers discusses the "Health Scientists' Global Plastic Treaty" **Plastics Health Council: The Health Scientists' Global Plastics Treaty Statement**
- Plastic & Health The hidden costs of a plastic planet (CIEL, 2019)
- IPEN quick views
- 3 Key Principles for a Plastics Treaty
- Increasing Evidence Shows: There are No Safe and Circular Plastics
- Global Controls on Plastic
- IPEN Plastics Treaty Platform
- Reducing Plastic Production to Achieve Climate Goals: Key Considerations for the Plastics Treaty Negotiations (CIEL)
- Prenatal phthalate exposure and adverse birth outcomes in the USA: a prospective study analysis of births and estimates of attributable burden and costs.

¹ Plastics accounted for 22-83% of the waste stream in audits of various wards or departments in five European and five Southeast Asian hospitals. (References: [Measuring and Reducing Plastics in the Health Care Sector](#), HCWH Europe, 2021; [Understanding and Addressing The Effects Of The Pandemic On Healthcare Waste Management](#))

Plastics and the petrochemical industry

- If plastics production was a country, it would be the world's fifth largest emitter of greenhouse gasses. Plastics production has increased in the face of a diminishing market demand for fossil fuels.
- Petrochemicals will account for more than a third of the growth in world oil demand by 2030, and nearly half of the growth by 2050. The IEA reports "demand for plastics – the key driver for petrochemicals from an energy perspective – has outpaced all other bulk materials (such as steel, toward cleaner energy that has taken decades of hard work by many. But the hardwon reductions in greenhouse gas emissions from coal plants are being quickly canceled out by a new universe of climate-warming emissions from plastics. Incredibly, this radical shift in the source of our deepening climate crisis is taking place without notice. Plastic is rarely mentioned aluminum, or cement) nearly doubling since 2000." International Energy Agency (IEA)
- Made from a combination of chemicals and fossil fuels, plastic produces greenhouse gas emissions at every stage of its life cycle. To provide context, if plastic were a country, it would be the world's fifth largest greenhouse gas emitter, beating out all but China, the U.S., India and Russia1.
- The hardwon reductions in greenhouse gas emissions from coal plants are being quickly canceled out by a new universe of climate-warming emissions from plastics.
- Ninety eight per cent of single use plastic products are produced from fossil fuels or virgin feedstock.
- Coal, oil, and gas are using plastics in response to diminishing market demand for fossil fuels, as the world turns increasingly to renewable energy.
- If plastic use continues to grow as projected, by 2050 the greenhouse gas emissions from plastic production and incineration will reach 15 percent of the global carbon budget, making global climate goals extremely difficult, if not impossible, to reach.

Plastics and toxicity

- Plastic products contain thousands of chemicals including carcinogens, neurotoxicants, endocrine disruptors, and others that can leach from plastic and plastic waste.
- Microplastics found in every human placenta tested in study.
- Microplastics can enter the body through inhalation and absorption by the skin and can accumulate in organs, including in the placenta. Some of the chemicals in microplastics are associated with serious health impacts, especially in women.
- Scientists have established links between exposure from chemical additives that leach from plastics, with obesity, diabetes, poor brain health and even cancer.
- REPORT | Chemical Recycling: A Dangerous Deception
- Reduce, reuse, redirect outrage: How plastic makers used recycling as a fig leaf
- Stemming the Plastic-Climate Crisis (Pacific Environment)
- Global criteria to address problematic, unnecessary and avoidable plastic products
- Warning over plastics used in treating premature babies (BBC)

Plastics and waste

- The world produces about 430 million tonnes of plastic a year, two thirds of which are short-lived plastics, which will become waste very quickly. The packaging sector is the world's largest generator of single use plastic waste.

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- Plastics do not readily break down, leading to more than 6 billion tonnes now polluting the planet.
- In 2019, global production, disposal, and incineration of plastic emitted 850 million metric tons of CO₂e, or carbon dioxide equivalent, as much as would be emitted by 189 500-Megawatt coal power plants.

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- Due to limited and inefficient waste management infrastructure, 40 percent of the world's garbage is burned, 12 percent of which consists of plastic. The burning of plastic waste has multiple health impacts, including increasing the risk of heart diseases and aggravating respiratory problems such as asthma and emphysema.
- Alternative disposal including recycling and chemical recycling have been demonstrated to be associated with significant health and environmental harms.
- 'They lied': plastics producers deceived public about recycling, report reveals, Guardian coverage of Center for Climate Integrity report on plastic recycling
- IPEN, Beyond Plastics, Chemical Recycling Report Summary, October 2023
- Human Rights Watch documented that plastic recycling in Turkey – the largest recipient of plastic waste exports from the European Union – is harming people's health.
- Countries in the Global North, including the United States, Canada, Japan, United Kingdom, and European Union member states, have routinely exported their plastic waste as “recycling” to countries with weak or nonexistent environmental regulations, low labor costs, and little government oversight on environmental and labor rights violations. For example, the United States shipped roughly 1.4 billion pounds of plastic trash overseas in 2020 (2), sending the majority to developing countries that lack the local infrastructure and markets to deal with this influx of plastic.
- Malaysia, Indonesia, Vietnam, and Turkey have recently become key destinations for the world's plastic waste exports after China banned the import of most plastic waste.
- Health care waste gets sent to developing countries. For example, in 2018, the United States alone produced 292.4 million tons of municipal solid waste (MSW) and sent 157 000 shipping containers of MSW to lower income countries (eg, Vietnam, Malaysia, Thailand, and China), dumping 1.07 million tons of plastic waste outside US borders. Some of that waste was healthcare waste.
- Between 400 000 and 1 million lives are lost each year in low- and middle-income countries (LMICs) due to mismanaged waste.
- Plastic trash flowing into the seas will nearly triple by 2040 without drastic action. The amount of plastic trash that flows into the oceans every year is expected to nearly triple by 2040 to 29 million metric tons.

Selected case studies and guidance documents on plastic reduction and detoxification

- Case study: replacing disposable N95 respirators with elastomeric masks (Study)
- **Measuring and reducing plastics in the healthcare sector** [[English](#)] [[French](#)] [[Spanish](#)] [[Dutch](#)] [[Portuguese](#)] (Health Care Without Harm Europe, 2021) includes case studies
- **Removing harmful PVC from healthcare** (Health Care Without Harm Europe, 2023)
- **Guidance for Personal Protective Equipment for immunizations practices:** [[English](#)] [[Spanish](#)] [[Portuguese](#)] (Health Care Without Harm, 2021) including reduction of plastic waste
- **Toolkit - Sustainability criteria for examination and surgical gloves** [[English](#)] [[Spanish](#)] [[Portuguese](#)] (Health Care Without Harm, 2021) including links to resources to reduce glove use
- **Sustainable food contact materials in healthcare** (Health Care Without Harm Europe, 2021)
- **Sustainable procurement quick guide - Reducing PVC and DEHP in IV bags** [[English](#)] [[Spanish](#)] (Health Care Without Harm, 2020)
- **Sustainable procurement quick guide - Reducing PVC and DEHP in medical products** [[English](#)] [[Spanish](#)] (Health Care Without Harm, 2020)
- Reducing plastic in healthcare | Best practice (06/06/2022)

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- [Why PVC remains a problematic material \(23/06/2021\)](#)
- [Building resilience: Evaluating the case for reusable medical protective clothing \(29/03/2021\)](#)