

Reducing Waste in Hospitals: The Costs of Disposable Medical Equipment

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Introduction

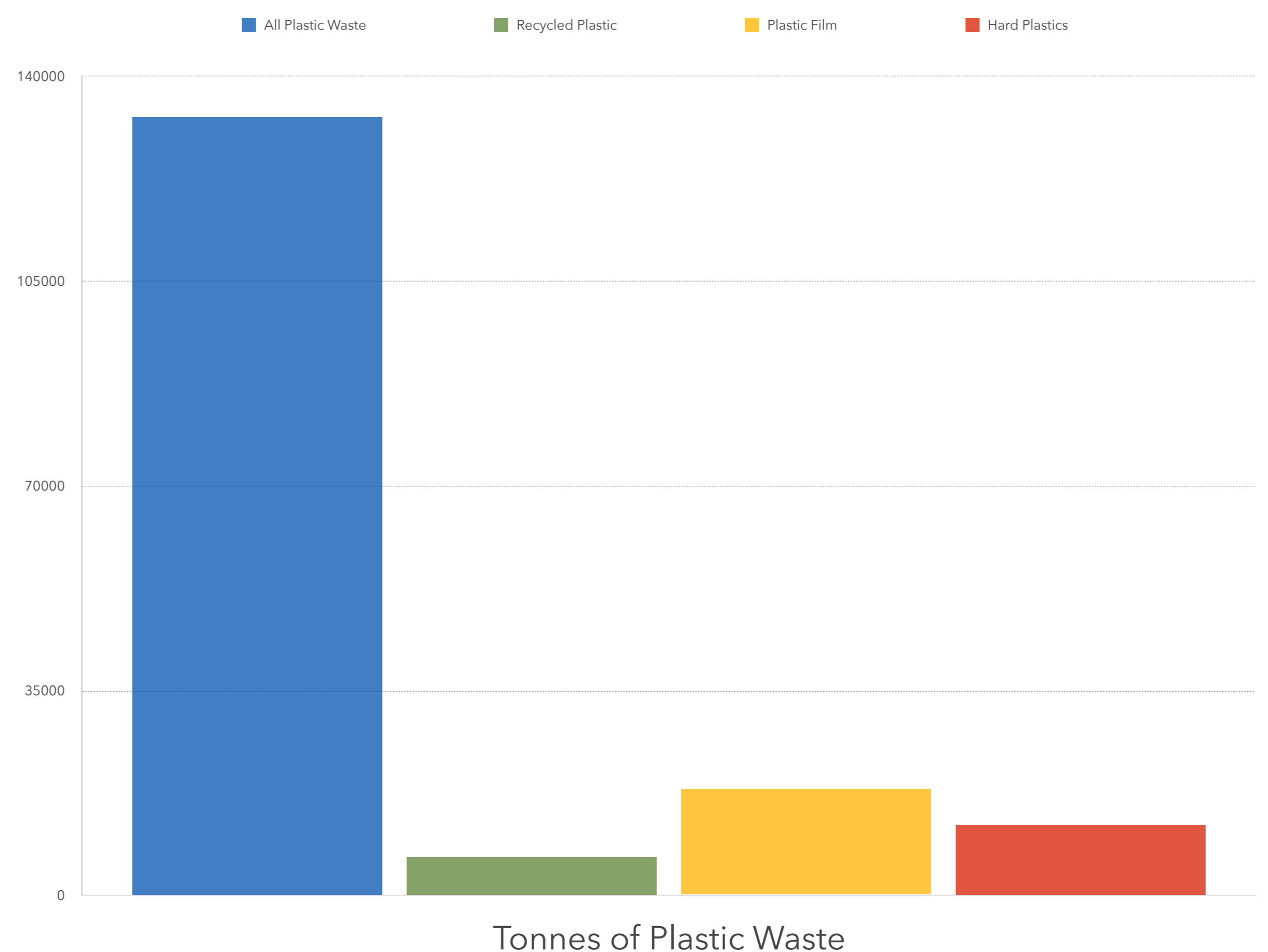
Currently, the NHS in England alone discards around 156,000 tonnes of clinical waste every year, with a substantial portion generated by disposable items used in surgery, such as tourniquets, scissors, and surgical tools wrapped in plastic packaging. Individually wrapped implants are purported to be useful for maintaining sterility and safety in operating rooms but significantly increase costs due to reduced time efficiency and contribute significantly to plastic waste, which degrade into microplastics that spread to a wide range of environments and currently have unknown effects on ecosystems and human health. The government's recently launched 'Design for Life Roadmap' initiative plans to have the UK transition away from all avoidable single-use MedTech products by 2045, and many trials of sustainable alternatives have been successful so far.

Analysis

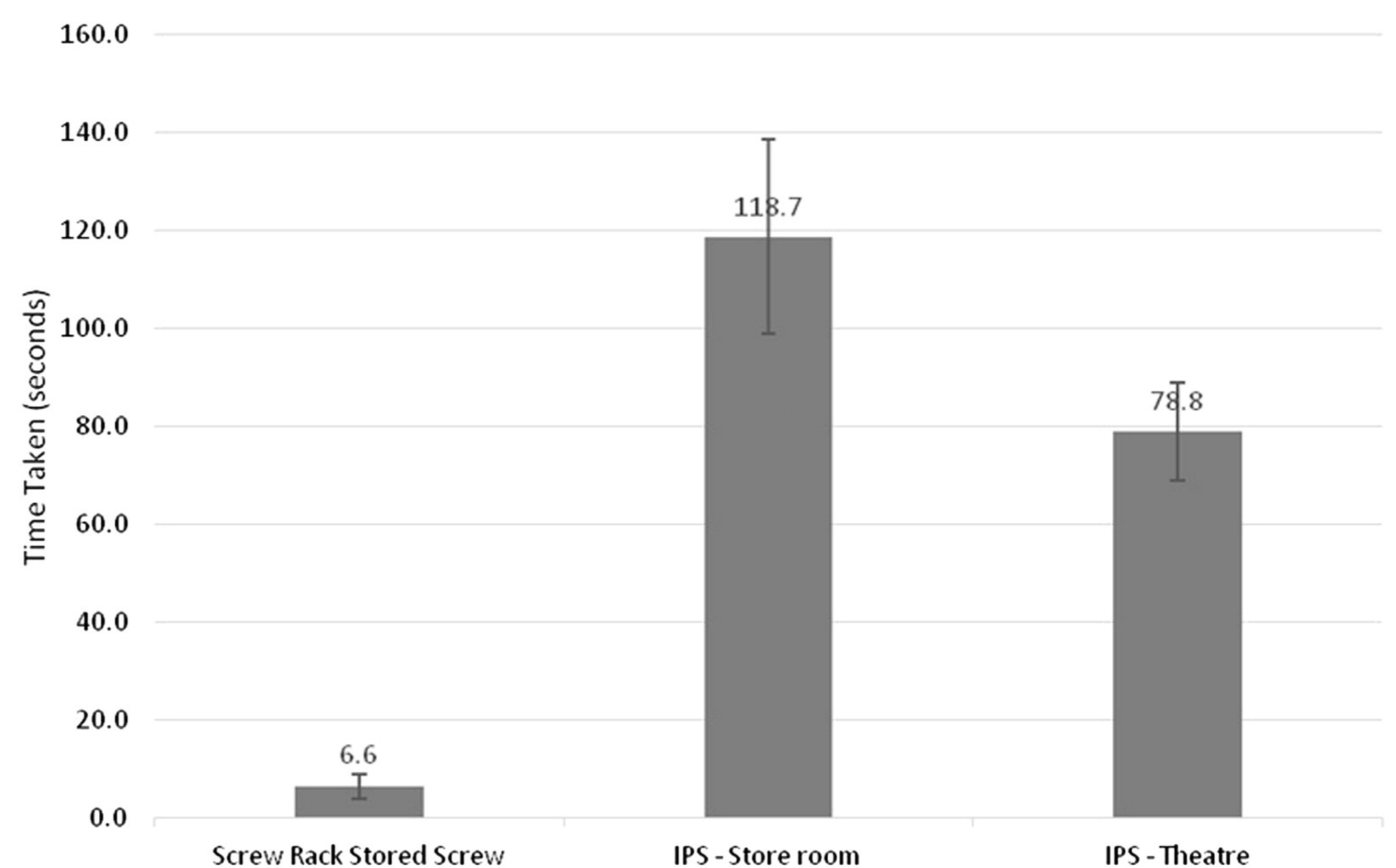
The NHS, similar to other sectors, relies heavily on plastic. NHS Supply Chain reports that plastic accounts for a larger proportion of NHS waste than in most other industries, comprising about 22.7% of all waste produced. Of this plastic waste, 13.7% is from plastic film, while 9% is from hard plastics. The NHS discards approximately **133,000 tonnes of plastic annually**, but only around 5% of this is recycled.

The use of individually wrapped implants is particularly concerning, especially due to the lack of clinical evidence with regard to reducing harm to the patient and increase in operating costs. A 2013 study in an NHS district general hospital found that when compared to screw rack stored screws, **the use of individually packed screws (IPS) could potentially increase department spending by approximately £76,680** per year due to an increased screw acquisition time of 72 seconds, despite the closer proximity of an IPS. As an example, a typical ankle ORIF (open reduction and internal fixation) surgery can cost £256 more and take 14.4 minutes longer IPS were used.

Other disposable items like tourniquet, and scissors are commonly used only once, and NHS procurement data shows that several million pairs of disposable scissors were purchased across the NHS from 2022 to 2023, amounting to **hundreds of pairs discarded every hour**.



Screw Acquisition Time



Successful Case Studies

- The switch to the use of reusable tourniquets that can last up to 10,000 uses by the Mid Yorkshire Teaching NHS Trust, which uses 330,000 tourniquets annually, has seen a reduction in procurement costs by £20,000 and avoided around 0.75 tonnes of plastic waste in one year.
- An ophthalmology department in Northampton Hospitals NHS Trust saved 1,000 pairs of scissors and reduced expenses by £12,000 in just one year by switching from disposable to reusable scissors.
- The purchase of 604 remanufactured electrophysiology (EP) catheters by Leeds Teaching Hospitals Trust saved £76,610 and generated an additional £22,923 by selling used devices for collection. Expanding this approach across the UK could potentially save the NHS millions each year on EP catheters alone
- Leeds Teaching Hospitals Trust has shown that harmonic shears used in surgery, which cost over £500 each and are discarded after one use 90% of the time, can be safely remanufactured, achieving up to 50% in cost savings.