



uninterruptible power supply

accessory drawer

insufflator

diathermy

ENT drill

EasyTower

LAPAROSCOPY | ENT | UROSCOPY

Problem

Limited access to surgical care in low- and middle-income countries has resulted in **the loss of approximately 16.9 million lives annually, accounting for 32% of global deaths.** This is more than tuberculosis, malaria and HIV combined.

Several factors contribute to this disparity, including the scarcity of surgical equipment. Despite the limited availability of equipment, a staggering **40% of donated equipment in sub-Saharan Africa is ultimately discarded in landfills due to its short lifecycle.**

This is attributed to the **lack of consideration for the local use context in the design of medical devices.** For example, medical devices are not robust enough, can not be repaired locally due to lack of access to spare parts and might not function because of the harsh working environment. (i.e. fluctuations in the electricity grid).

District hospitals act as the primary point of care for many communities, making them an **ideal location to improve access to surgical care.** Implementing laparoscopy - a form of minimally invasive surgery - in district hospitals, can address many issues currently faced by these hospitals, such as limited patient beds and high infections rates.

Laparoscopy offers much shorter recovery times and reduces risks of infection, thus improving clinical outcomes and allowing individuals to return quickly, thus enhancing the livelihoods of families that might rely on a single source of income.

Solution

Recognising that equipment availability is an issue in hospitals, **I designed EasyTower - a practical and cost effective design.** EasyTower integrates an outer casing to securely store the devices required for laparoscopy, such as the diathermy, ENT drill, and insufflator. Seamless connectivity to an uninterruptible power supply ensures continuous operation through power outages.

The tower includes a flexible laptop holder and a drawer for accessories. **Instead of using the typical laparoscopic stack, costs are drastically reduced by using a laptop to replace the light source, screen and image processing, thus eliminating the need for expensive equipment,** by connecting to a scope that works with a standard laptop or tablet.

EasyTower is **designed to be mobile, thus ensuring equipment can be moved and utilised in various hospital settings as needed.** It can easily be opened up and used directly. To reduce the risk of damaging the medical equipment, Easy tower folds into a safe, lockable storage space (like a flightcase), protecting equipment from frequent impacts with e.g. patient beds, thus **ensuring a longer life span.**

Produced from off-the-shelf components which can be easily procured in Africa, **EasyTower can be produced locally and spare parts can be easily sourced, making it easy to repair locally.**

