

# Medical equipment donated to developing countries inappropriate for local conditions

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Wealthy countries that make donations of expensive medical equipment to low- and middle-income countries may be missing the mark, according to a new Imperial College London / Lancet Commission. The report examines how medical technology should best be used to improve health in low- and middle-income countries, and finds that in many cases, medical technology – almost exclusively developed in rich countries – is simply inappropriate for use in poorer nations.

"Most health technology is produced by companies from high-income countries for high-income markets. Health technology is therefore mostly designed for an environment with high spending on health, a reliable energy supply and large numbers of trained healthcare professionals," says Peter Howitt of Imperial College London, UK, one of the Commission's authors.

According to hospital inventories, an estimated 40% of healthcare equipment in developing countries is out of service, compared with less than 1% in high-income countries. The inappropriate deployment of medical technologies from wealthy countries plays a major part in this high failure rate.

Instead of relying on hand-me-down technologies from wealthier countries, which can be costly, inappropriate for local conditions and even dangerous, the authors urge a renewed effort towards developing what they call "frugal technologies" – cost-effective technologies that are developed specifically to cope in local conditions. Examples of frugal

technologies which have been developed to meet local needs include:

- The Jaipur foot – a rubber prosthetic for people who have lost their leg below the knee. Designed in the late sixties in India, it has a flexible design which allows users to walk on uneven surfaces and without a shoe, unlike traditional prosthetic feet developed in high-income countries. It's cheap to manufacture and can be made using local materials with minimal investment in factory equipment.
- PATH's Uniject injection system, which allows once-only use of needles for injectable contraceptives, meaning that recipients are much less likely to get infected through needle re-use.
- The eRanger, a durable rural ambulance, based around a motorbike and stretcher sidecar (which can be modified to carry one or two people). It can be easily fixed, is cheap to purchase and maintain, and copes well with poor road surfaces. Studies show that it has markedly improved health outcomes in Malawi.

Another innovative approach is to take advantage of existing information and communications technology for health purposes. The mobile telecommunications revolution has led to a situation where many people who do not have adequate sanitation do have a mobile telephone. Mobile phones can therefore be used to support healthcare efforts – from smoking cessation via text message, to surveillance of disease outbreaks. ICT can provide a virtual training environment for doctors – currently being tested by Imperial College London (UK) to assess the feasibility of training doctors from Malawi.

The report also advocates a wider understanding of what we mean by medical technologies, pointing out that technological improvements to sanitation and road condition could also have a far-reaching impact on public health in many low- and middle-income countries. Furthermore,

the authors argue that advances in technology need to be accompanied by innovation in processes to have a significant effect on health – this includes the development of effective delivery mechanisms and novel approaches to financing.

Professor Lord Ara Darzi of Imperial College London, UK, another of the report's authors, concludes that: "Technology is making a substantial contribution to global health, yet it could do so much more. The benefits of health technology should be available to all, not only those in high-income [countries](#). Access to life-saving health technology should not be restricted to those with the ability to pay. Tackling current market failures is therefore a task for all those with an interest in improvement of global health."\*

**More information:** [\(12\)61127-1/abstract](http://www.thelancet.com/journals/lan...)

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