

Operating Efficiently: Fixing the market for surgical equipment in low and middle income countries.

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BACKGROUND

Five billion people lack access to safe and timely surgery and the need is greatest in low and middle income countries (LMICs). This is partly due to a lack of surgical staff but lack of equipment is a contributing factor.

- 55% of district hospitals surveyed across eight African countries did not have an anaesthetic machine.
- 70% of operating rooms in parts of sub-Saharan Africa have no pulse oximeter.

The same day cancellation rate is estimated to be 30 % in LMICs . It could be reduced if the issues of supplies and equipment were addressed.

- A study of a large Tanzanian hospital attributed 28% of cancellations due to lack of equipment and supplies.

WHY IS THIS IMPORTANT?

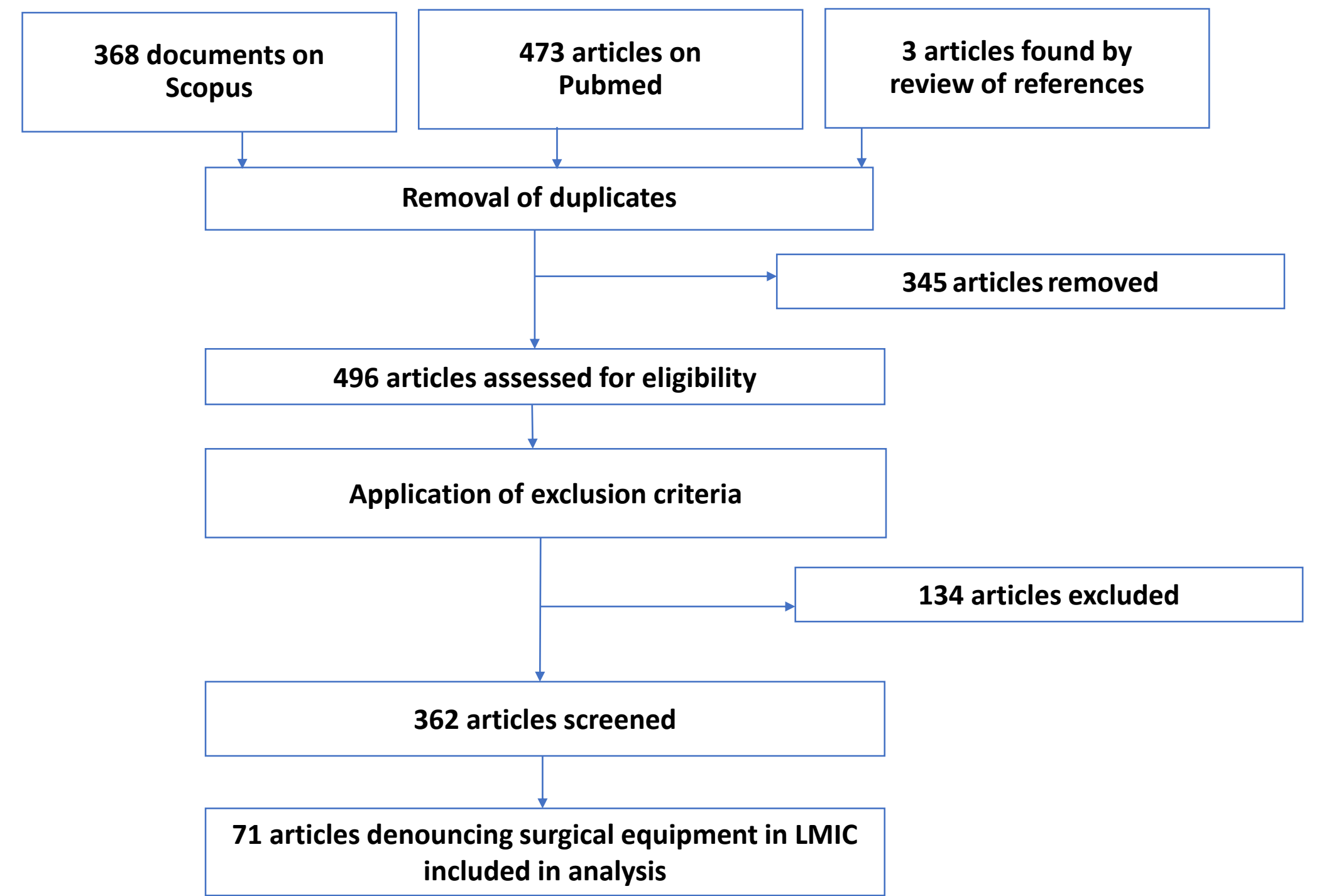
- Patients are placed at avoidable risk - Lack of monitoring and anaesthetic equipment leads to higher perioperative mortality.
- Surgeons can not work efficiently - Poor use of limited staff when equipment shortages lead to operations being cancelled.
- It causes treatment delays.

RESEARCH QUESTION

What are the problems with access to surgical equipment in LMICs and can they can be addressed using the approach taken to successfully increase access to HIV anti-retroviral drugs?

METHODS

A systematic literature review of surgical equipment in LMICs was conducted using PubMed and Scopus databases.
Thematic analysis of resultant papers.



MARKET FAILURES

Analysis showed many problems with acquiring equipment are due failures in the market in LMICs.
In addition, there is a problem of inappropriate equipment, including broken and inappropriate donations for the LMIC environment; and with servicing available equipment.

Supply Side	<ul style="list-style-type: none">• Prohibitive expense of new equipment.• Lack of context specific equipment.	<ul style="list-style-type: none">• Internationally manufactured equipment targeted at HIC costumers.• Poor purchasing power of facilities and states does not incentivise market innovation.
Demand side	<ul style="list-style-type: none">• Small fragmented markets due to low demand from low numbers of participants across different countries.• Purchasing on credit led to inflated prices.	<ul style="list-style-type: none">• Lack of financing leads to an inability to pay for equipment and low number of viable customers• Poor administrative capacity to assess needs and manage stock leads to infrequent orders.• Lack of funding leads to credit purchasing and default risk which suppliers cover by charging higher prices
Other/Post Market	<ul style="list-style-type: none">• Equipment in disrepair.• Long and unpredictable waits for arrival of supplies.	<ul style="list-style-type: none">• Limited capacity for maintenance or repair.• Unreliable supply chains, limited local manufacture means equipment travels long distances.

SOLUTIONS

Situational assessment & Forecasting demand	<ul style="list-style-type: none">• Assess current situation regarding available equipment, deficits and needs. Forecast demand for equipment as services are scaled up.• Similar to assessments of HIV/AIDS health facilities, professionals and number of patients and drug demand.
Aggregating demand & Price negotiation	<ul style="list-style-type: none">• Aggregated across time as well as facilities and countries. Bulk and multiyear orders enable price negotiation.• Suppliers are assured of volume of orders and therefore exploit economies of scale to lower costs.
Procurement & Local capacity building	<ul style="list-style-type: none">• Tendering, organising and choosing suppliers based on defined criteria and agreeing terms after a competitive process is required. Ensures competitively priced, affordable goods that meet requirements.• Working with and training local people to increase their ability to organise the multiple phases in procurement.
Organising finance	<ul style="list-style-type: none">• Arrange and secure financing, as for in country HIV/AIDS programmes, would lead to reliable funds for equipment purchase and/or repair. Financing can be a blend of funding, including own country financing as well as NGO.
Supply chain management	<ul style="list-style-type: none">• Devices and equipment are manufactured internationally, management of the supply chain up and downstream of the point of entry is important to achieve the reliable supply of goods.
Encouraging innovation	<ul style="list-style-type: none">• Identify unmet need for LMIC specific equipment and stabilise the market by ensuring the demand.• Engage financing and industry stakeholders.