

# The long term outcomes of hernia repair utilising mesh, at Kilimanjaro Christian Medical Centre, northern Tanzania



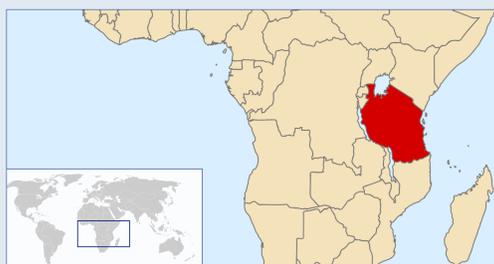
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## Introduction

The *Lancet Commission on Global Surgery* found 'surgical conditions are responsible for one-third of the world's burden of disease'. Many life-saving, disability-preventing surgeries are cost effective in low and middle-income countries (LMICs), but much research is needed for effective implementation.

Hernias affect 223 million people globally and are very common in Tanzania. Two techniques to repair hernias are using sutures or implanting synthetic mesh to strengthen the weakened native tissue.



A Cochrane review compared these techniques and found a reduced risk of recurrence with mesh of up to 75%, as well as quicker return to work and lower rates of pain. However, commercial mesh is expensive and unaffordable for many patients in LMICs. Mosquito net mesh has been effectively used as a cheaper alternative to commercial mesh, with no significant difference in adverse event rates.



In Tanzania, 1 piece of 15cmx15cm commercial mesh costs approximately 240,000TZS (US\$107.00), 26% of the average yearly income for a Tanzanian working in the private sector. Northumbria Trust (NHCFT) has had an international health link with KCMC, Tanzania. NHCFT sourced a new low cost generic mesh (Figure 2) directly from a net supplier, so could choose the specifications. It was cut into 15x15cm pieces and sterilised in an autoclave at 134°C, then been donated to KCMC since 2014.

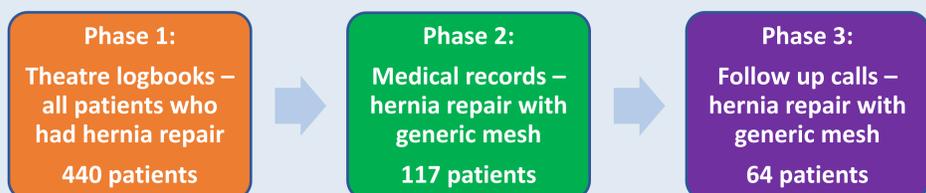
We needed to evaluate the efficacy of the generic mesh, specifically the long term outcomes. This includes rates of recurrence, pain and other complications, which had not been assessed previously. There is also limited published follow up of low cost mesh in SSA.

## Aim

To follow up patients that had hernia repair with generic mesh at KCMC, to evaluate the effectiveness of the mesh primarily in terms of *recurrence and pain*.

## Method

- Phase 1: All cases and details of hernia repair documented from theatre logbooks for 2011-17
- Phase 2: Medical records reviewed for patients from Feb 2014 to March 2017, to gather all case information and complete audit form
- Phase 3: All patients with phone numbers were called, and follow up questionnaire was completed (includes if hernia had recurred and pain)



All phases completed at KCMC. Analysis was completed using SPSS, and pain categorised using a score out of 10 and impact on activities of daily living

## Results

- Donation of mesh led to 23% increase in hernia repairs with mesh rather than suture (fig. 3)
- 55% of those with medical records and had repair with generic mesh completed telephone follow up. No significant difference in age, sex or type of hernia when comparing those with and without follow up.

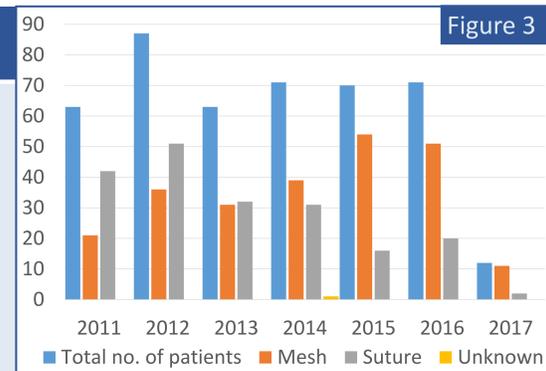


Table 1

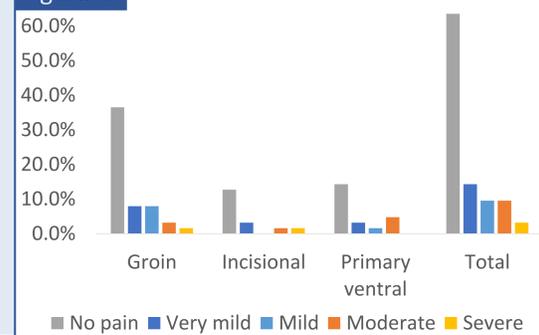
Hernia Category	Total [n (%)]
Groin	63 (55.3)
Incisional	22 (19.3)
Primary ventral	29 (25.4)
<b>Total</b>	<b>114</b>

### GENERIC MESH:

- Mean length of follow up: 17 months
- 0% recurrence
- 76.6% patients with no/very mild pain (fig. 4)
- No significant difference in recurrence or pain between types of hernia

- 69.2% male, 30.8% female
- Mean age: 49 years
- Mean length of stay: 4.66 nights
- 9.5% recurrent hernias, 6.3% obstructed
- General anaesthetic most common

Figure 4



## Discussion

Generic mesh used in hernia repair led to no symptomatic patient-reported recurrence at an average of 17 months follow-up, a positive result for the first study of a new alternative to commercial mesh. This reflects other studies of low-cost mesh in low or middle-income countries. Pain rates found are comparatively higher, but this may be due to inclusion of more complex cases, such as recurrent hernias. Further research is particularly needed on primary ventral and incisional hernias, due to fewer cases.



Photos of hernia repair surgery with mesh on training programme at KCMC, Tanzania

The long length of stay demonstrates a need for day case facilities and local anaesthetic to reduce both risks and costs.

There are many limitations affecting the accuracy and reliability of this study including small sample size, loss to follow up, inaccuracies from retrospective data gathered and telephone call follow up rather than in person (therefore recurrence was self-reported).



## Conclusion

The generic mesh had favourable outcomes in terms of recurrence in comparison to other low-cost meshes. For a highly prevalent condition, generic mesh presents a promising, cost-effective alternative to commercial mesh. Its use may be beneficial in other areas of Tanzania, and other LMICs. However, larger and more robust studies are required to confirm its efficacy, before its use can be expanded.