Clinical and Economic Impact of a Tri-Layer Hybrid Biomaterial vs Synthetic Mesh for Ventral Hernia Repair in Australia: A Cost-Consequence and Budget Impact Analysis

Ryan J. Imhoff, Anne K. Marti, Erik J. Landaas
Dept. of Health Economics & Outcomes Research, W.L. Gore & Associates, Newark, DE, USA

GORE® SYNECOR Biomaterial

EE729

Together, improving life

Objectives

Assess the economic benefits of the tri-layer hybrid biomaterial (THB) versus a synthetic mesh (SM), placed in the preperitoneal plane, by comparing clinical outcomes, resource use and the budget impact when repairing ventral-incisional hernias.

Methods

Cost-consequence and budget impact analyses were derived from patient outcomes identified for each device through a targeted literature review. Patient outcomes were measured at 3 years post-implant: reoperation due to hernia recurrence, development of seroma (stratified by treatment to resolve), mesh explant due to infection, and median hospital length of stay. Costs (in AUD) to the Australian health care system were obtained from public sources. Results were confirmed with one-way and probabilistic sensitivity analyses.

> Results

There was no reported reoperation for hernia recurrence among THB patients, compared to 9.8% among SM patients. The seroma rate was also lower for THB, with fewer requiring intervention or reoperation to resolve. This led to an expected cost savings of $946 per patient treated when using the THB, resulting in a projected budget impact of $23.85 million in potential savings to the Australian NHS if 100% of patients used THB. Incorporating reduced LOS (4 days for SM versus 1 day for THB) increases the expected cost savings to $3,001 per patient treated, and a budget impact of $75.7 million in savings. Sensitivity analyses showed results to be robust to reasonable changes in base input values. The cost savings were driven largely by a lower rate of reoperation due to hernia recurrence.

Conclusions

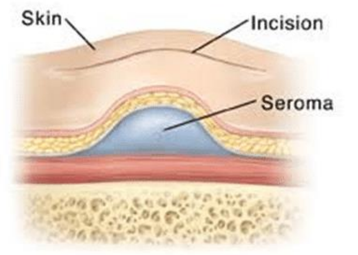
The findings of this study suggest that using the tri-layer hybrid biomaterial may improve patient outcomes, lower reintervention rates, and result in substantial cost savings for the Australia health system, compared to using a synthetic mesh. Additional cost-effectiveness modeling, highlighting potential quality of life benefits, will provide further insights on the benefits of the THB.

Indication in Analysis

Ventral Hernia Repair in the Preperitoneal Plane

Comparing the Economic Costs and Benefits of using SYNECOR PRE Biomaterial vs. Synthetic Mesh

Cost-consequence and budget impact analyses were derived from patient outcomes identified for each device through a targeted literature review.



3 years post implant

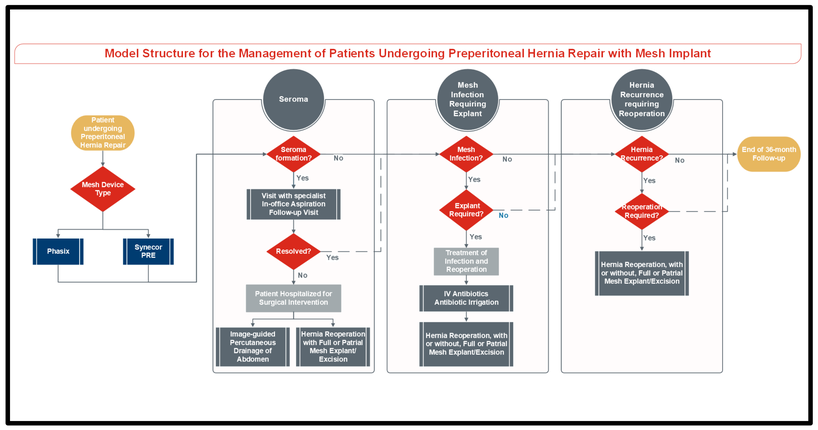
Re-operation due to hernia recurrence

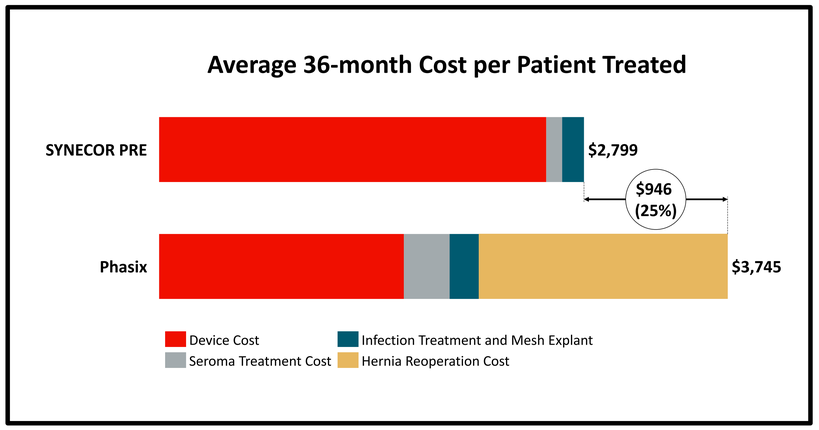
Costs per patient treated were multiplied by the expected number of eligible patients per year.

Six scenarios were compared – a baseline with 100% of the patients receiving the Synthetic mesh, along with five different scenarios of SYNECOR PRE Biomaterial device utilization

Other outcome measures

- Seroma stratified by treatment to resolve
- Mesh explant due to infection
- Median hospital length of stay

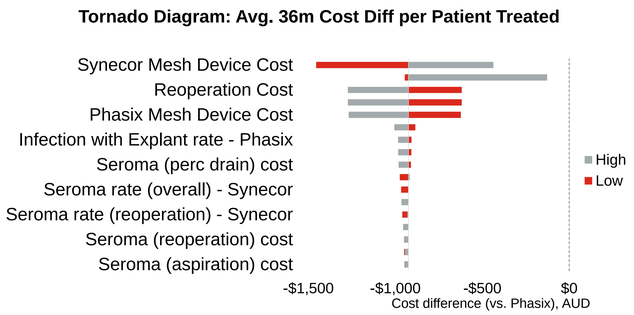




Model Results - Total 36-month Costs per Patient Treated

Cost Category	Phasix	SYNECOR PRE
Device Cost	$1,612	$2,550
Hernia Reoperation Cost	$1,639	$0
Seroma Treatment Cost	$302	$105
Resolved with In-Office Aspiration	$8	$12
Required Intervention / Precutaneous Drainage	$198	$21
Required Reoperation / Mesh Explant	$97	$72
Infection Treatment and Mesh Explant	$192	$144
Avg. Total Cost per Patient Treated	**$3,745**	**$2,799**
vs. SYNECOR PRE	**$946**	**-**

* Positive value means SYNECOR PRE is cheaper, Negative value means SYNECOR PRE is more expensive



Presenter

Erik J. Landaas MPH, PhD
WL Gore & Associates
elandaas@wlgore.com ~ 808-343-3176