



Reducing Arthroscopes' Repairs in Major Operating Theatre (MOT) & Ambulatory Surgery Centre (ASC) Singapore General Hospital

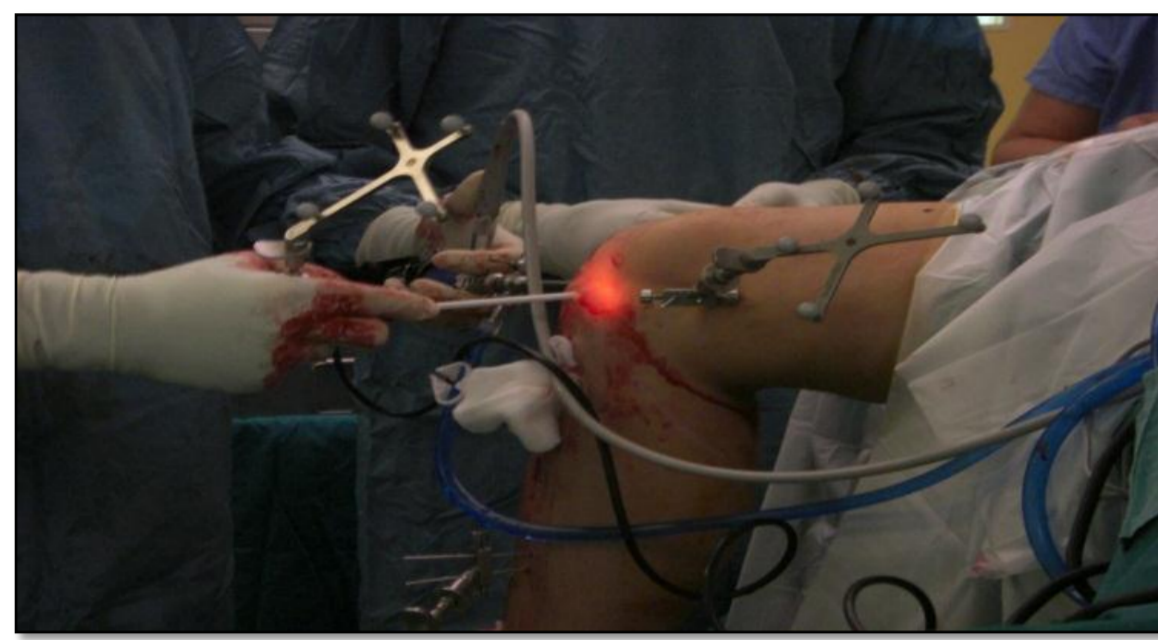
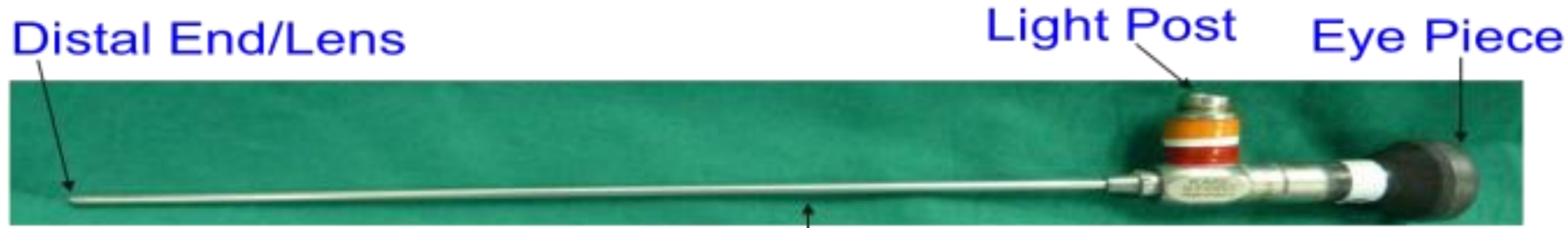
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Introduction

An endoscope/arthroscope, a delicate instrument used by surgeons to view & examine an area in the human body through natural orifices or key-hole incisions created in the skin.



Arthroscope used in Minimally Invasive Surgery (MIS) of knee

Objective

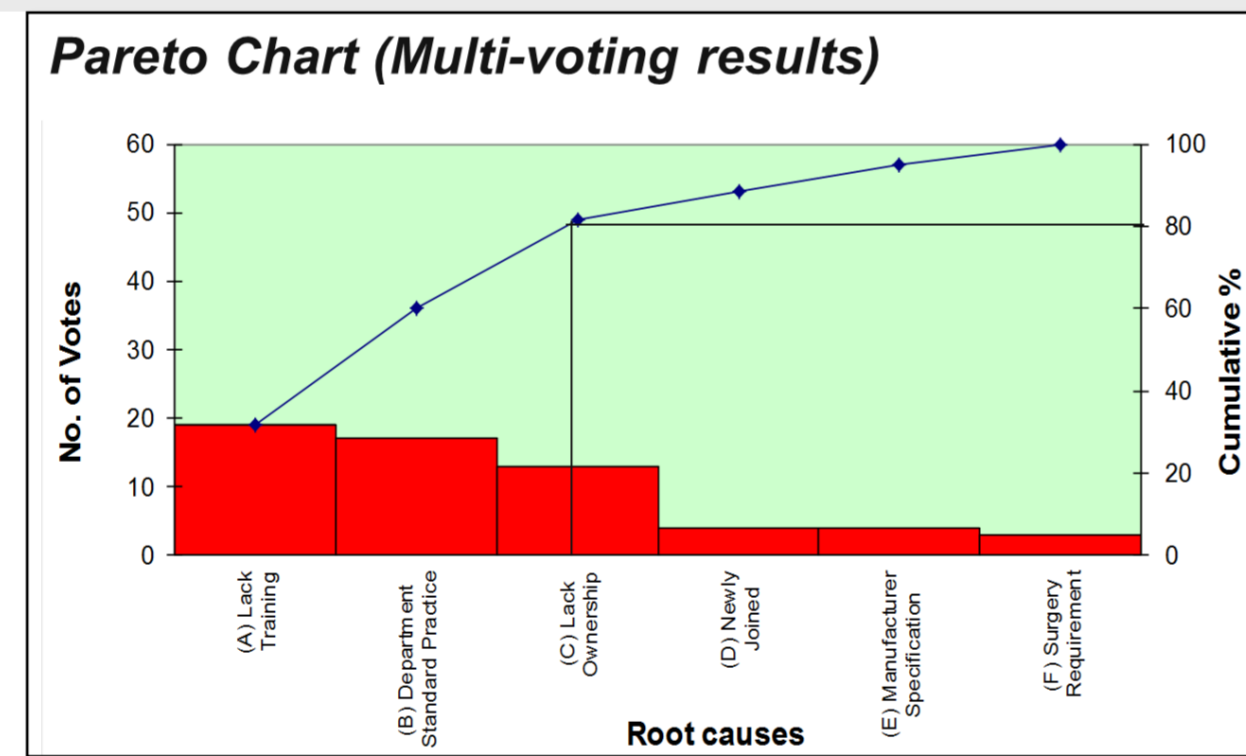
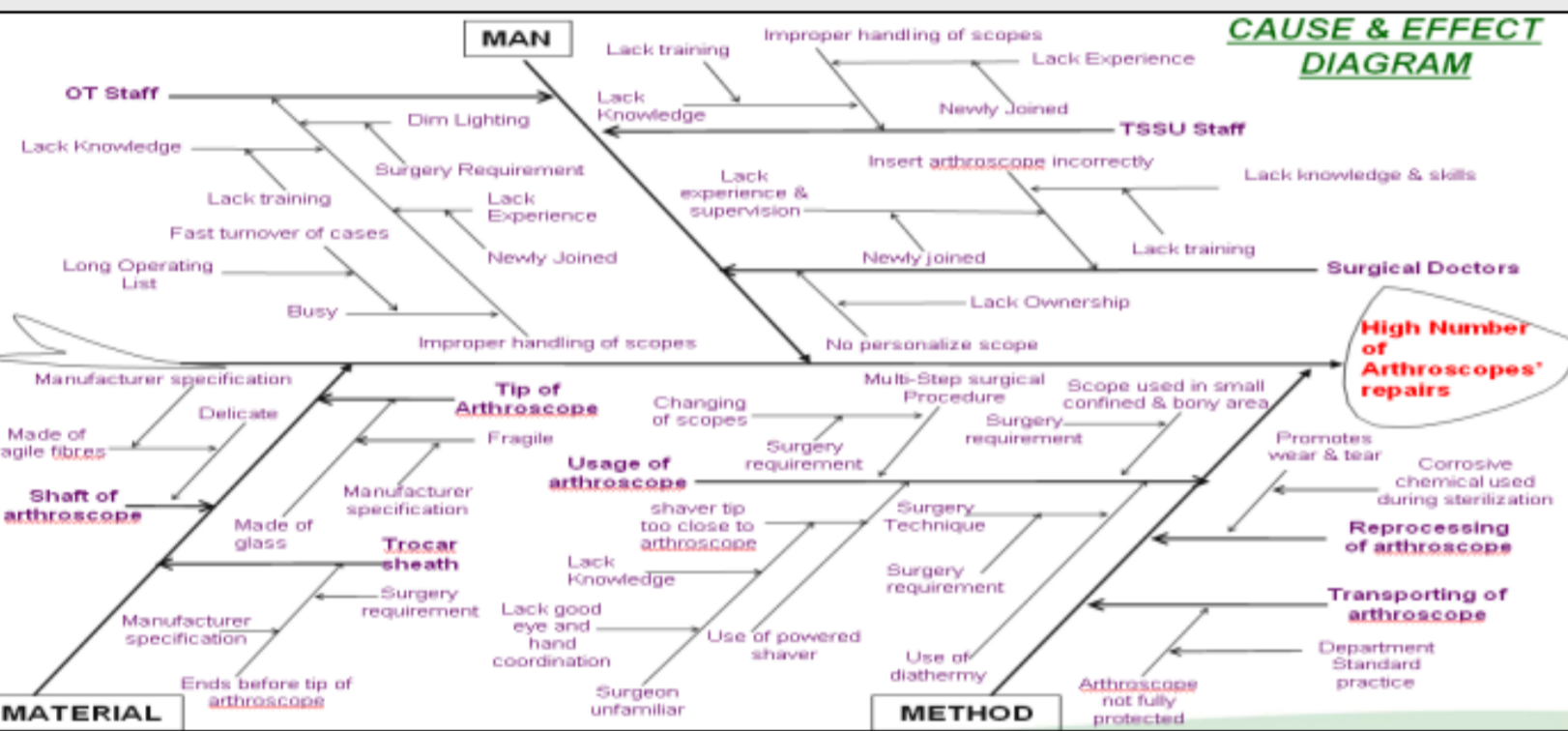
To reduce the number of arthroscopes' repairs by 80% in Singapore General Hospital Orthopaedic and Hand surgical disciplines in MOT and ASC from March 2010 to June 2011.

Reasons for Project

- High costs of endoscopes' repairs for the hospital / dept:
- \$111 740 (2008) & \$133 480 (2009)
- Time wastage to obtain a replacement scope during surgery

Methodology

Strategies for improvement:



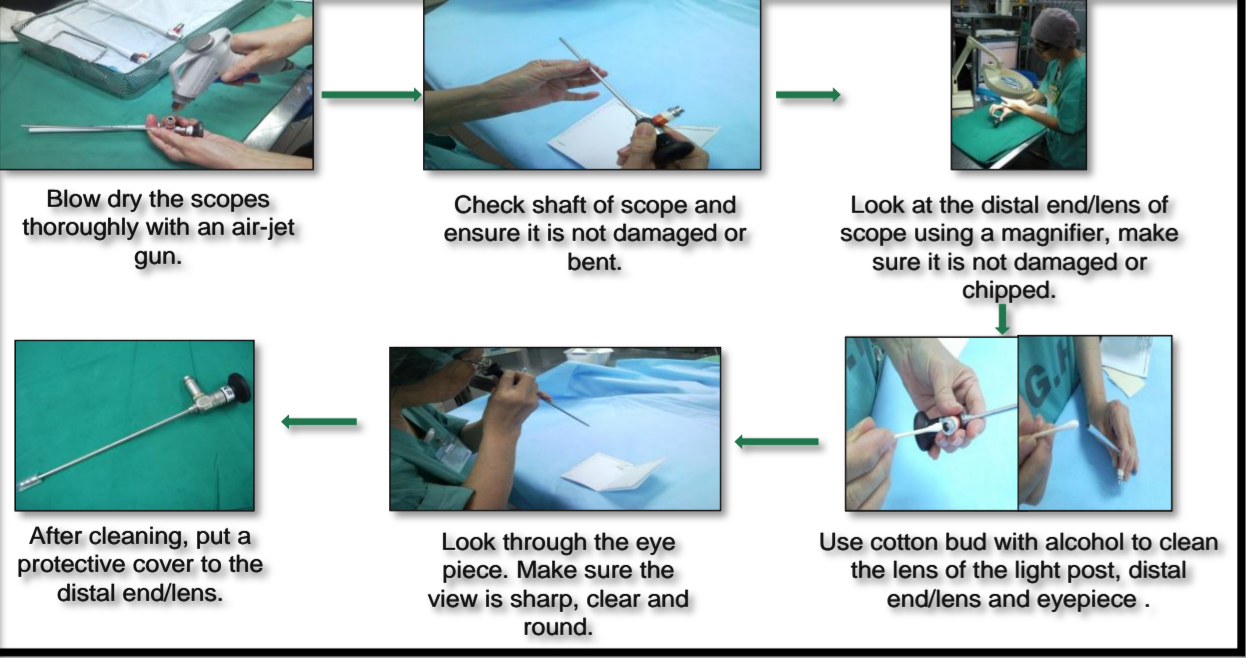
A Tree Diagram was used to generate solutions to reduce the number of Arthroscopes' repairs

	Effective	Manageable	Cost Effective	Sustainable	Meet Org. Goal	Total	
To improve knowledge and skills in handling of arthroscopes	5	5	5	5	5	25	Intervention 3
	5	5	5	5	5	25	Intervention 1
To improve standard practice of reprocessing arthroscopes	5	3	5	3	5	21	Intervention 5
	5	5	5	3	5	23	Intervention 2
To create a system of ownership	3	5	1	3	3	15	
	5	5	3	3	5	21	Intervention 4
	1	1	5	1	3	11	

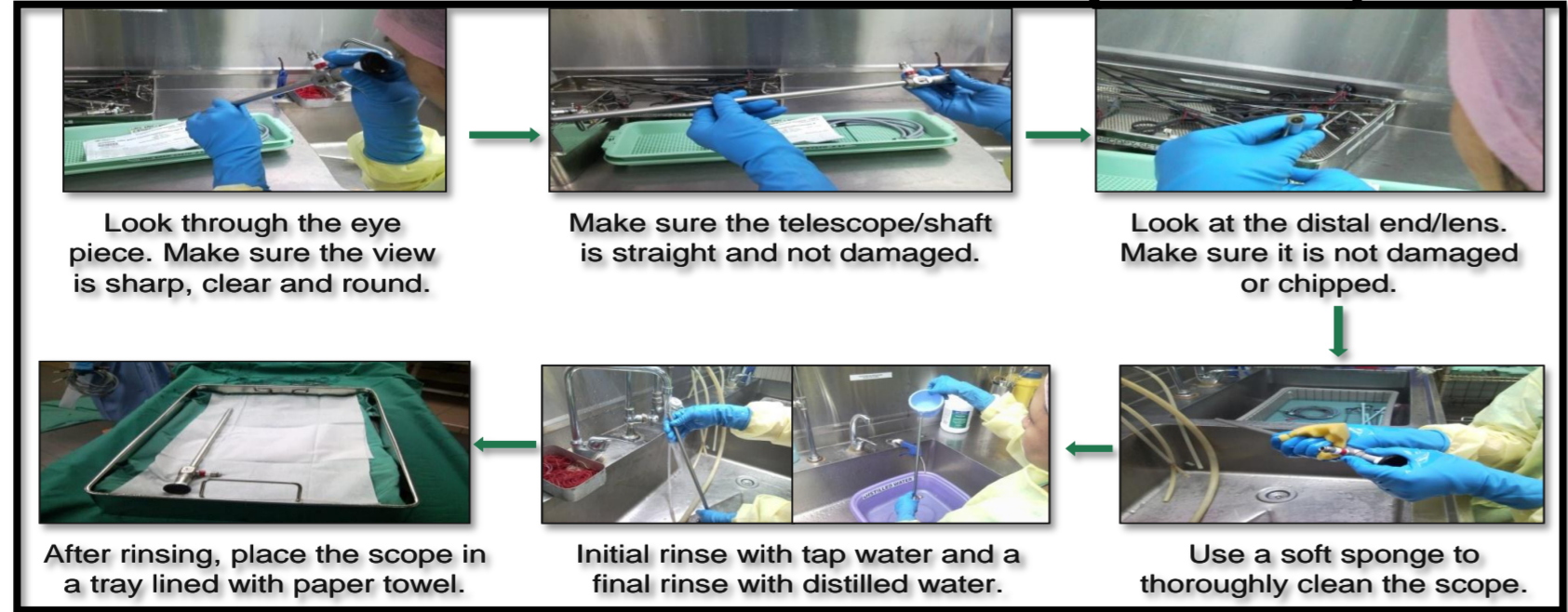
Intervention 1

Created pictorial guidelines:

1. Packing area (TSSU)



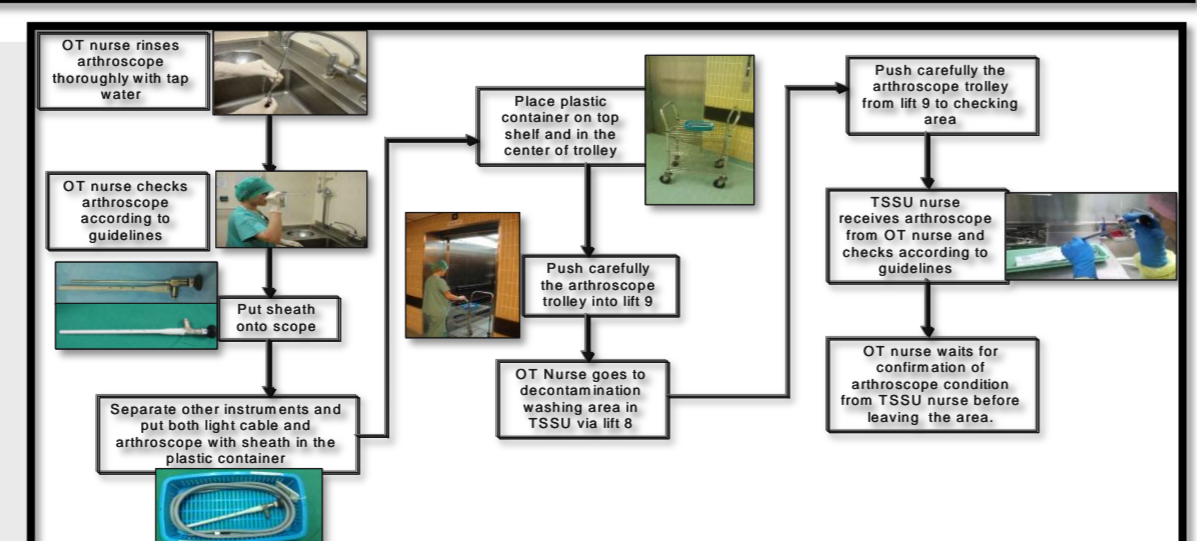
2. Decontamination area (TSSU)



Intervention 2

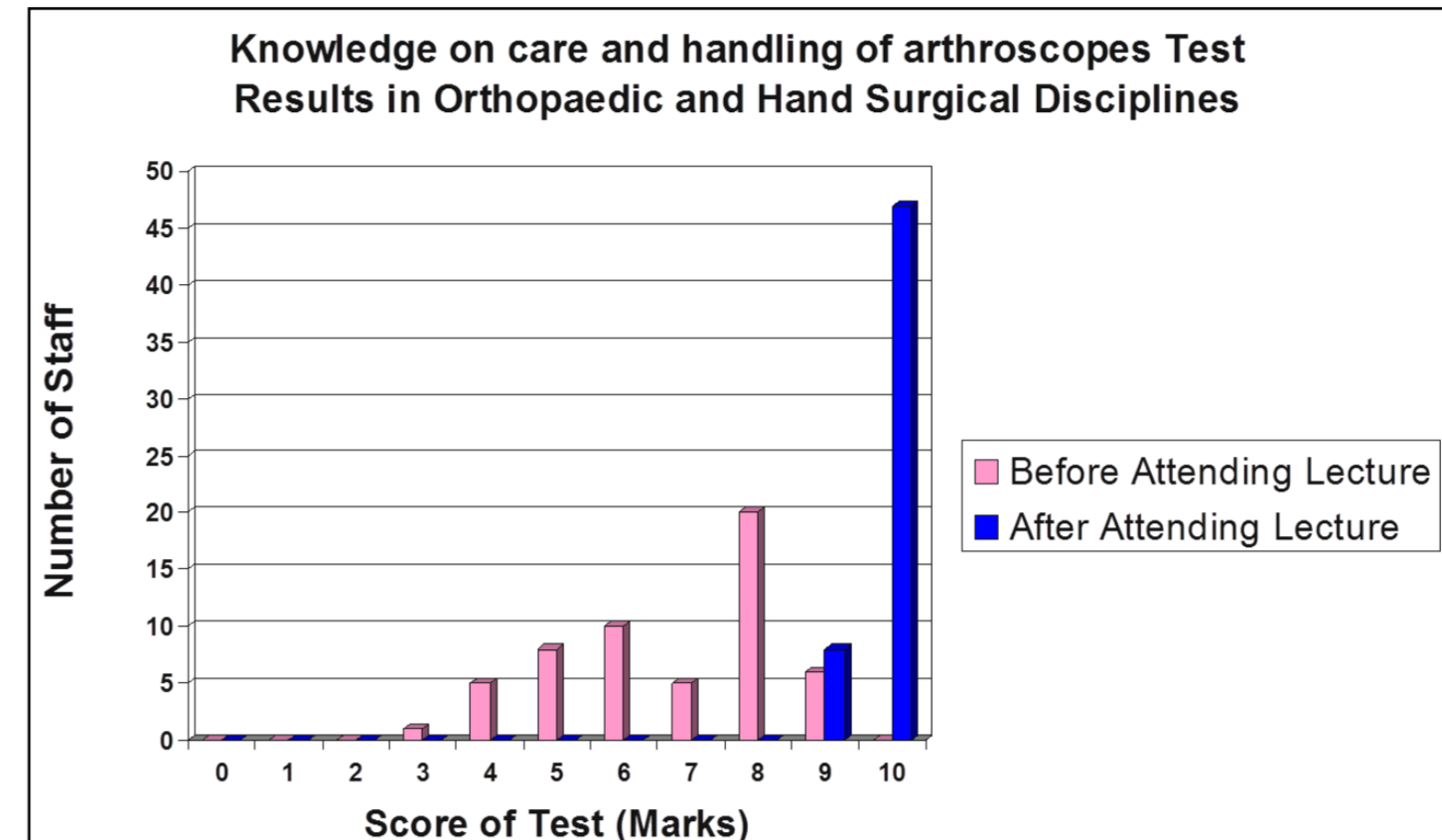
Created pictorial guidelines:

- Transporting arthroscopes posted at MOT disposal rooms



Intervention 3

- Conducted in-service lectures



- Conducted tests to assess staff knowledge on care & handling of scopes

Intervention 4

- Assigned scopes to groups of surgical doctors - Discontinued after 2 weeks
- Leverage on IT - T-doc Instrument Management System (TIMS) to track scopes history & utilization using bar-coded label

Bar-coded label

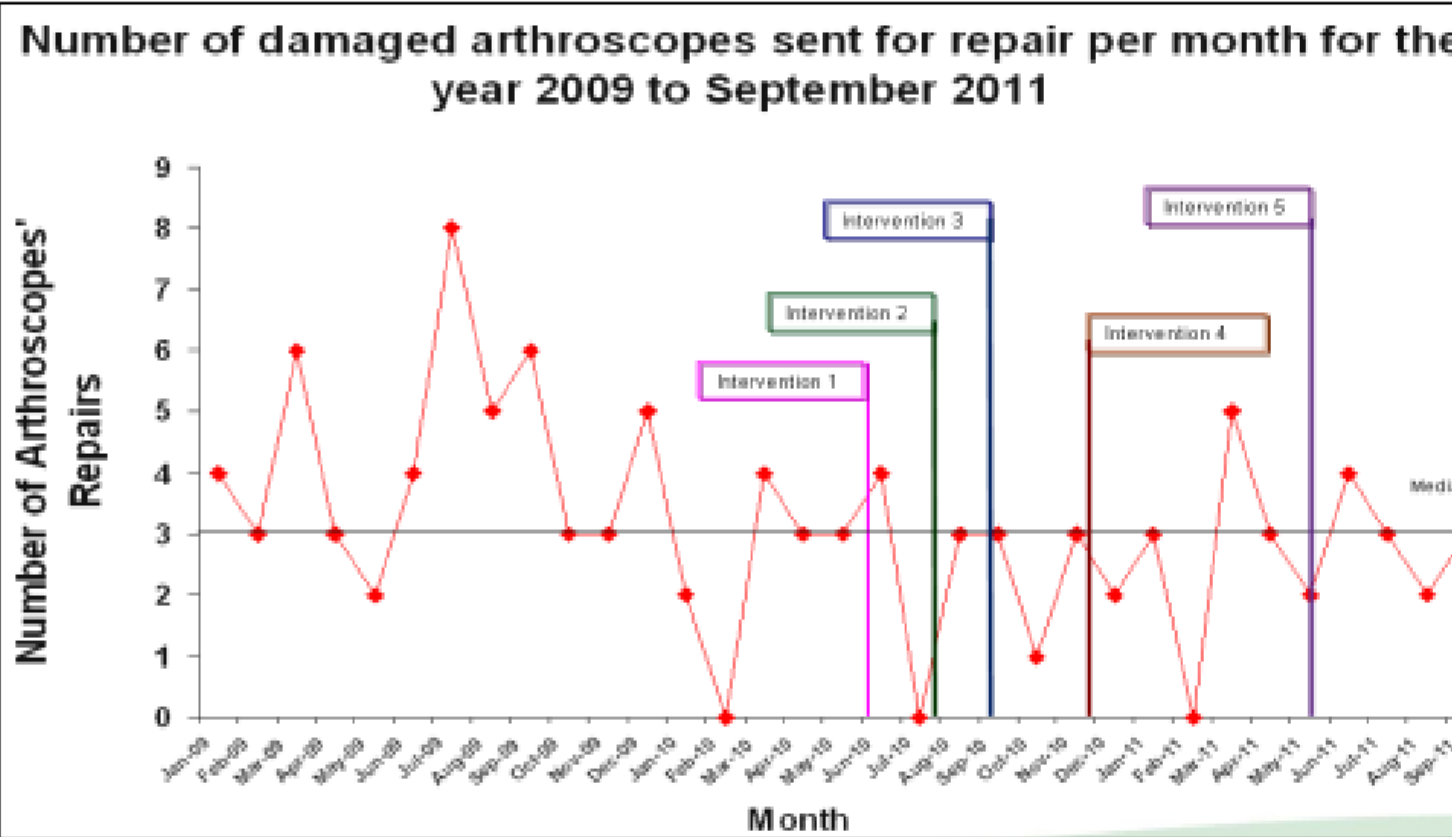


Intervention 5

Conducted workshops for surgical doctors using simulated knee training model with video-camera system set-up



Results



Analysis

Year	No. of Cases Done	No. of Arthroscopes Repairs	Cost of Arthroscopes Repair	% of Scopes damaged (per 100 cases)	Cost of Arthroscopes Repair (per 100 cases)
2008	960	29	\$35,860	29 / 960 x 100% = 3%	\$35,860 / 960 x 100 = \$3735.40
2009	1430	52	\$70,180	52 / 1430 x 100% = 3.6%	\$70,180 / 1430 x 100 = \$4907.70
2010	1313	28	\$32,440	28 / 1313 x 100% = 2.13%	\$32,440 / 1313 x 100 = \$2470.70
Sept 2011	1188	25	\$30,460	25 / 1188 x 100% = 2.1%	\$30,460 / 1188 x 100 = \$2564

Arthroscopes' repairs :

- End of 2010 - by 46%
- Sep 2011 - by 52%

Arthroscopes' Repair Costs:

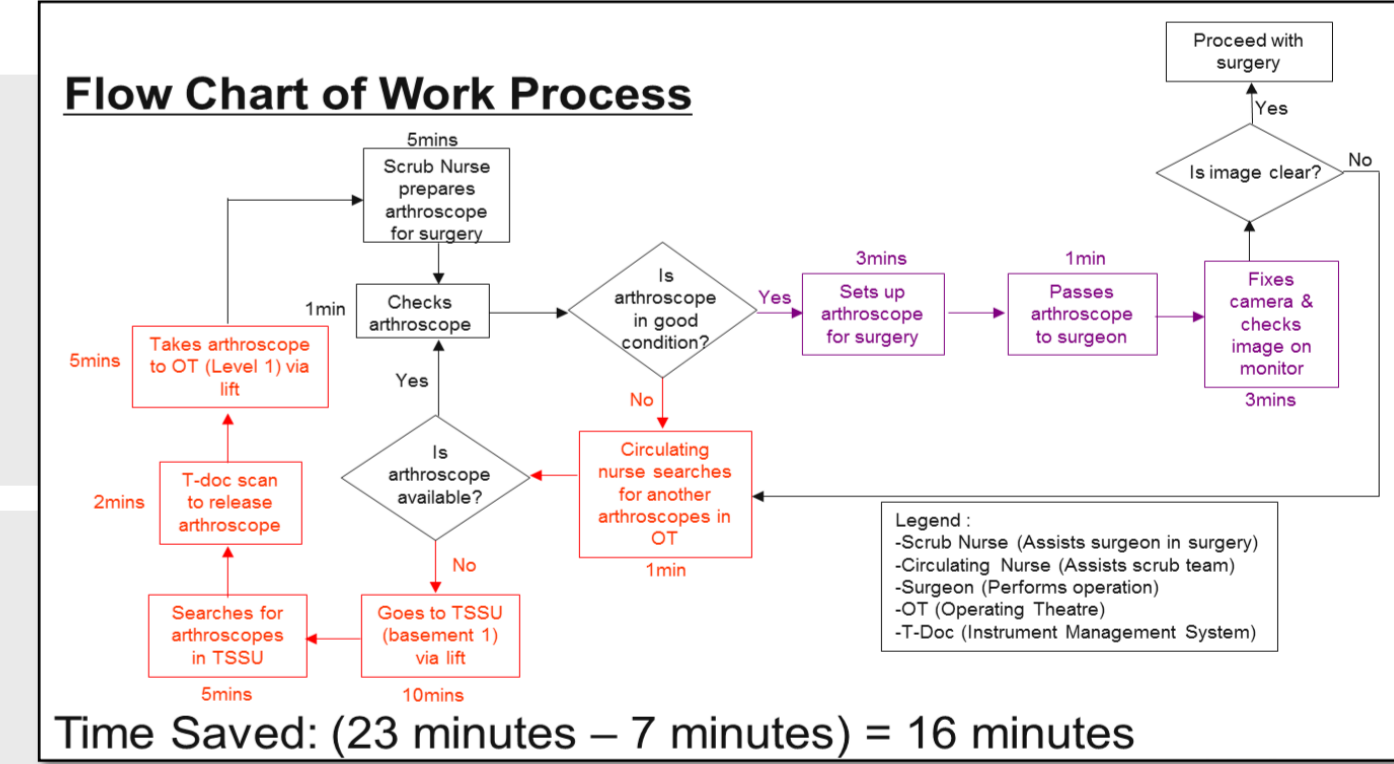
- ↓ 4907.70 to \$2564 per 100 cases

Tangible Benefits

- Repair costs: ↓ \$70 180 to \$30 460
- Time saved: 16mins per patient

Intangible Benefits

- Patients experience best outcome
- Efficiency & productivity are optimised
- Stakeholders' stress level decrease and moral increase
- Arthroscopes' shelf-life maximised to meet surgery demands
- No wastage in OT time, expensive resources & facilities
- Enhanced rapport, better work-place relationship amongst depts.



Sustainability

- Continue to collect feedback, conduct lectures & training for staff
- Work with medical suppliers to train technicians on maintenance, conduct yearly audit & servicing of scopes
- Continue to leverage on IT - use TIMS data-base on trends & usage of scopes, created & uploaded training video
- Plan for more workshops & simulated skill lab in 2013
- Formalized service contract on "Replace & Exchange"
- Purchased scope tester to check alignment of scope shaft



Training video on TIMS

Scope Tester



Conclusion

Everyone is responsible for the proper care and handling of arthroscopes. It is crucial to monitor scope utilization, routinely inspect scopes for signs of defects, track repair history & learn to fix minor damage before it escalates to a state where it requires major repair which will be costly.