

Setting up a Minimally invasive Cardiac Surgery program with novice team. A systematic approach

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AIM

We describe in the study our methodology for preparing a team who had not been exposed to minimally invasive cardiac surgery (MICS) to start a fully functional, efficient, and safe MICS program.

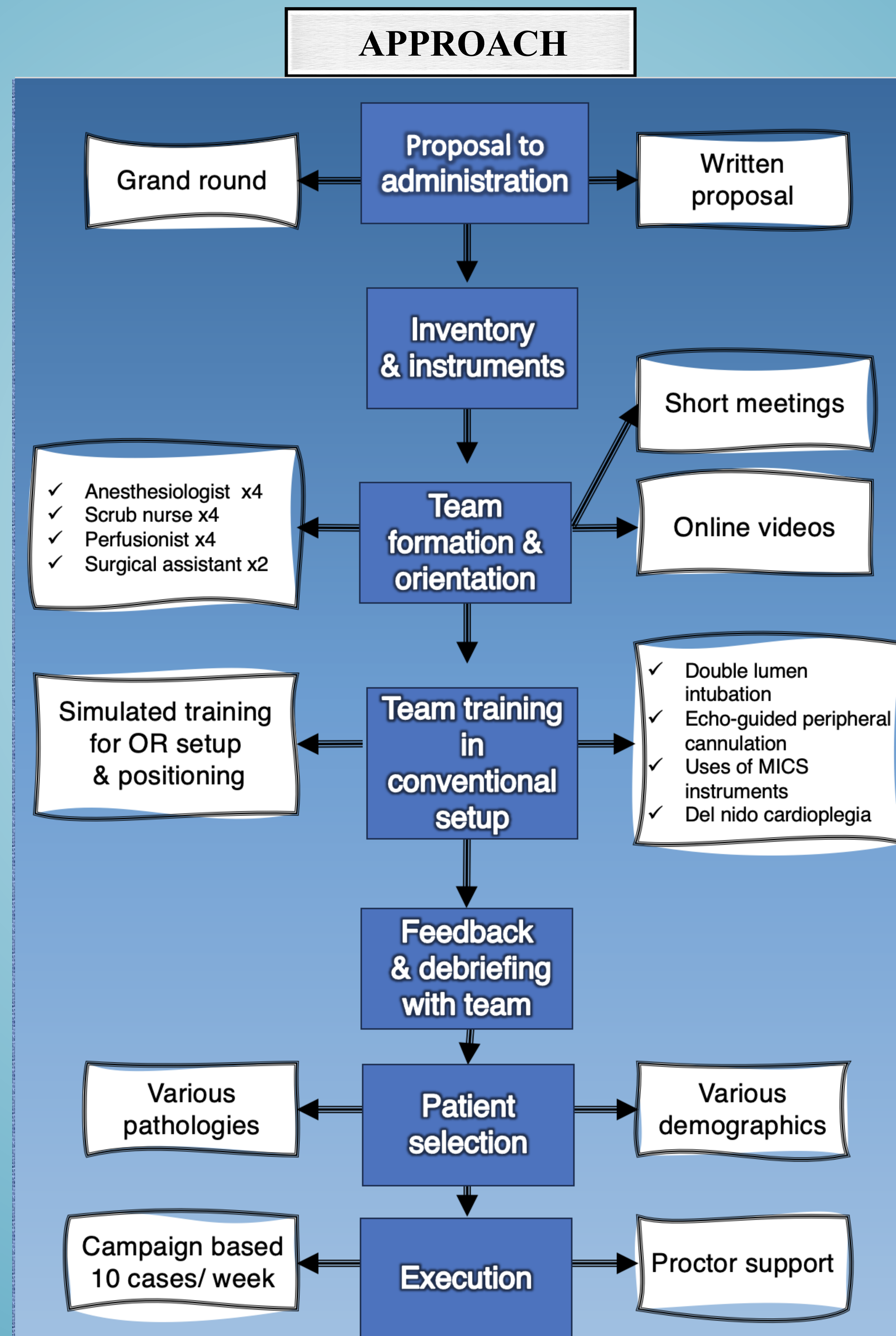
METHODOLOGY

A proposal for a minimally invasive surgery (MICS) program was submitted to the heart center administration, followed by a grand round and ordering of surgical instruments. A team of surgical assistants, anesthesiologists, perfusionists, scrub nurses, and circulating nurses was selected. Preparation involved online tutorials, familiarization with instruments, and introduction of Del Nido cardioplegia solution. Meetings were held to address concerns and familiarize the team with challenging situations.



Picture 1: Our team of capable surgeons, perfusionists, nurses and anesthesiologists.

APPROACH



RESULTS

The cases were performed by a single MICS trained surgeon under the proctorship of an experienced surgeon. All cases were successfully done via MICS approach without any conversions. There were no adverse events. Only 1 patient required a blood transfusion. Average ICU length of stay was 14 hours and a majority of patients were discharged on post-operative day 3. We also focused on monitoring team efficiency and turnover. The results are summarized in the table below.

PATIENT	AGE	GENDER	BMI	PATHOLOGY	PROCEDURE	INDUCTION TO SKIN / min	SURGERY TIME / hours:mins	CPB TIME / min	XCLAMP TIME / min	BLOOD TRANSFUSION/ ml	ICU STAY / hours	HOSPITAL STAY / days	24 HOUR DRAIN / ml
1	71	F	27.6	MR/Degenerative MV / P2 Prolapse	MICS MVV (ARTIFICIAL CHORDEA & RING)	76	5:05	175	106	NO	15	3	370
2	30	M	32.6	ASD (secundum)	MICS ASD CLOSURE / BOVINE PERICARDIAL PATCH	60	3:55	142	70	NO	11	3	60
3	49	M	25.8	MR/MYXOMATOUS MV / P2-P2 Prolapse	MICS MVV (ARTIFICIAL CHORDEA & RING)	60	4:55	112	76	NO	17	3	350
4	55	M	27.1	CORONARY ARTERY DISEASE	MICS CABG / LIMA-LAD	66	4:35	N/A	OFF-PUMP	NO	12	3	450
5	32	F	23.7	SEVERE MRV / BARLOW'S	MICS MVV (ARTIFICIAL CHORDEA & RING)	60	3:25	143	107	NO	16	3	350
6	34	M	38.3	SEVERE AORTIC VALVE REGURGITATION	MICS AVR / MECHANICAL PROSTHESIS SIZE 25	90	4:15	143	111	NO	11	6*	450
7	52	M	18.7	SEVERE MRV / BARLOW'S	MICS MVV (ARTIFICIAL CHORDEA & RING)	70	4:25	180	143	NO	15	3	500
8	76	M	28.8	CORONARY ARTERY DISEASE	MICS CABG / LIMA-LAD	70	3:55	N/A	OFF-PUMP	NO	11	3	430
9	42	M	20.9	AORTIC VALVE INFECTIVE ENDOCARDITIS	MICS AVR / MECHANICAL PROSTHESIS SIZE 21	55	4:15	158	99	NO	16	10**	280
10	62	M	27	SEVERE Bicuspid AORTIC VALVE STENOSIS	MICS AVR / BIOPROSTHESIS SIZE 23	45	4	111	83	500	15	4	1050
11	43	M	27.1	MR / P2-P3 Prolapse	MICS MVV (ARTIFICIAL CHORDEA & RING)	55	3:55	178	134	NO	15	3	500

Table 1: Results of MICS cases executed

CONCLUSION

Our innovative training strategy transformed a novice team into a competent MICS unit, demonstrating its effectiveness in resource-constrained settings. Adapting this model empowers similar teams globally, democratizing access to advanced cardiac care.