Improve Percentage of MAC Patients Proceed for Scheduled VIR Procedures within 60mins from Appointment Time

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National Healthcare Group — Adding years of healthy life

Mission Statement

To improve the percentage of MAC patients proceed for scheduled Vascular Interventional Radiological (VIR) procedures within 60 minutes (from the appointment time) from 22% to 80% within 6 months

Team Members

	Name	Designation	Department
Team Leader	Ms Rosaline Yeo Lay Peng	Senior Nurse Manager	Previous at MAC Present at Nursing Service
Team Members	Dr Joseph Lo Zhiwen	Associate Consultant	General Surgery
	Ms Dorothy Tan	Nurse Clinician (NC)	Diagnostic Radiology
	Ms Kelly Wang Zhi Fan	Assistant NC	Diagnostic Radiology
	Ms Shen Peipei	Senior Staff Nurse	MAC
	Ms Chong Yik Huay	Staff Nurse	MAC
	Ms Chew Lee Lik	Patient Service Associate	MAC
	Ms Roshnaran Begum D/O Shaik Mohamed	Senior Assistant Nurse	Star Team
	Ms Wan Kit Yin	Patient Service Associate	Clinic B1A
Sponsor	A/Prof Alan Ng Wei Keong	Senior Consultant	Respiratory & Critical Care Medicine
Mentor	Ms Christina Tan Hwei Hian		

Evidence for a Problem Worth Solving

1. MAC is a short stay facility where patients are managed and discharged within 24 hours, instead of being admitted as inpatients.
2. MAC admission timing if from 0800 and 1700hours

VIR patient admitted at 8am. By 4pm, patient has to be discharged. → If patient's procedure delay and could not be discharged, the next 5pm scheduled appointment could not use the bed. → Patient will either admit to Emergency Department or Inpatient for the elective infusion

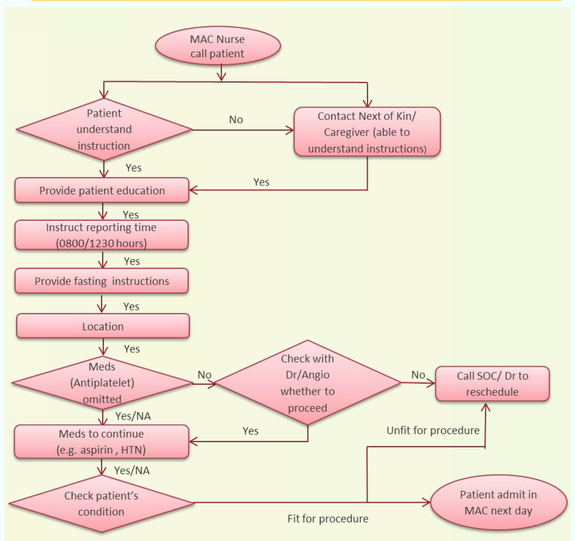
3. Problems Encountered:
   - Delay in start time of procedure
   - Decrease patient's satisfaction (both 8am and 5pm admission timing)
   - Patients are unable to discharge on time (by 4pm); next scheduled patients are not able to start their treatment on time.
   - Nurses and PSAs required to re-work and plan for beds for next scheduled patients in order to commence their treatment timely

Flow Chart of Process

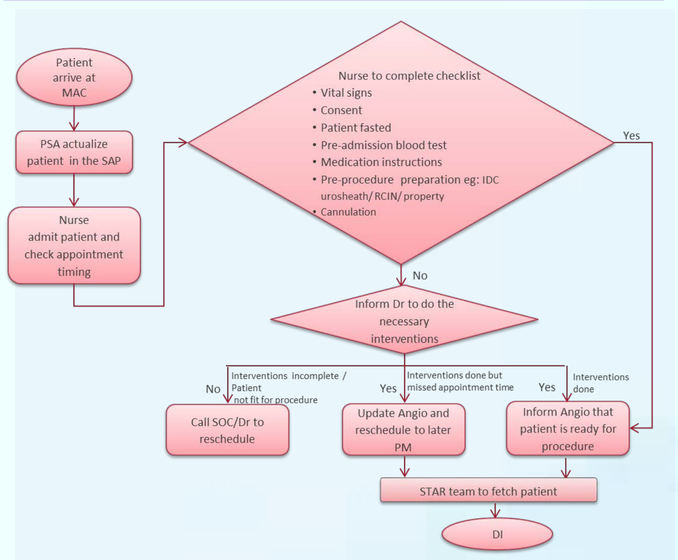
Macro Flowchart

Referral from ward/ SOC → MAC PSA / SOC PSA to book appointment in Artificial Intelligence Bed Management Unit (BMU) → D-1 MAC Nurse call patient for confirmation → Procedure Day Patient admit in MAC → Angio Reception → Back to MAC for post monitoring → Home

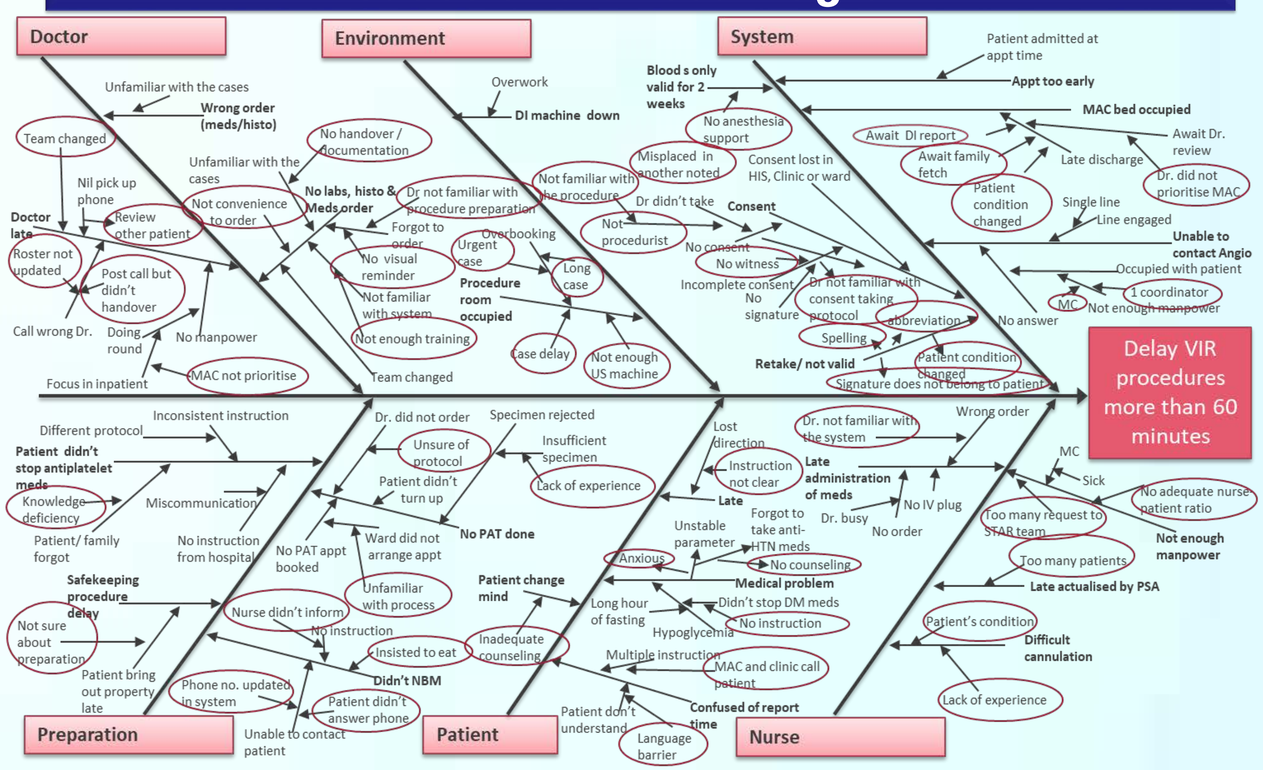
Micro Flowchart: D-1 MAC Nurse call patient for confirmation



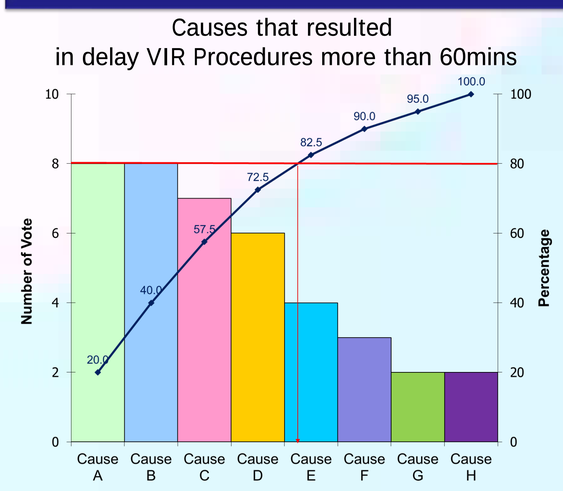
Micro Flowchart: Procedure Day - Patient admit in MAC



Cause and Effect Diagram



Pareto Chart



Cause A	No / Inadequate instructions or counselling
Cause B	Consent misplaced
Cause C	Ward unfamiliar with ambulatory pre procedure process
Cause D	Patient's condition (difficult IV cannulation)
Cause E	Unsure of Angio protocol (bloods only valid for 2 weeks)
Cause F	Too many ad-hoc / force in Angio cases
Cause G	Patient's medical conditions (anxious)
Cause H	Too many patients

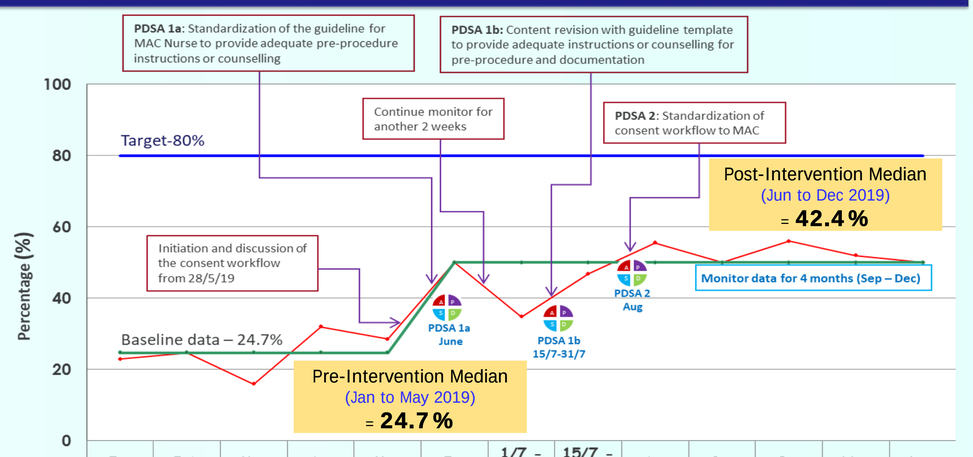
Implementation

Root Cause	Intervention	Implementation Date
Cause A: No / Inadequate Instructions or Counselling	**PDSA 1**: Standardization of the guideline for MAC Nurse to provide adequate pre-procedure instructions or counselling **PDSA 1A**: Content revision with guideline template	1 Jun 2019 15 Jul 2019
Cause B: Consent misplaced	**PDSA 2**: Standardization of consent workflow to MAC	1 Aug 2019

Results

Percentage of MAC patients proceed for scheduled VIR procedures within 60 mins

Period: Jan to Dec 2019



	Jan	Feb	Mar	Apr	May	Jun	1/7 - 14/7	15/7 - 31/7	Aug	Sep	Oct	Nov	Dec
Data (%)	22.9	24.7	15.9	32	28.5	50	34.8	46.8	55.5	50	56	52	50
Target (%)	80	80	80	80	80	80	80	80	80	80	80	80	80
Median (%)	24.7	24.7	24.7	24.7	24.7	50	50	50	50	50	50	50	50

Pre-Intervention Median ← → Post-Intervention Median

Cost Savings

	Item	Pre-Intervention	Post-Intervention	Outcome
Per Patient	Mean Time Taken (mins)	106	73	33
	Estimated Manhour Cost(s) Saved ($)	$136.20	$68.10	$68.10
	Manpower Savings ($)	$136.20	$68.10	**$68.10**
Annualized	Mean Time Taken (mins)	152,640	105120	47,520
	Estimated Manhour Cost(s) Saved ($)	$196,128.00	$98,064.00	$98,064.00
	Total Manpower Savings ($)	$196,128.00	$98,064.00	**$98,064.00**

Problems Encountered

1. Time consuming in collecting data
2. Staff expectations' on changing interventions during PDSA - overcome by constant communication and feedback session
3. Stakeholder's to stay aligned - establish objectives of the project scope

Lessons Learnt

1. Communication is imperative for effective teamwork
2. Great effort is needed for collaboration across all stakeholders
3. Reviewing the current processes / practice is important for constant improvement
4. Interventions may not work initially but PDSA will provide insightful perspective
5. Implementation might benefit relevant department. However, need to be mindful on downstream impact to other areas.

Strategies to Spread

Review clinic processes - Explore possibilities for clinic to refer MAC guidelines or customize pre-procedure instructions to their current workflow

VIR / Bedside Procedure

Logistic Instructions

1. Greet the recipient & identify self/patient. Ask for permission to speak to them.
2. Clarify with recipient whether did the clinic provide any information about the procedure / IV infusion
3. Report to MAC at 0800/1230/1700hrs
4. Check patient's condition
5. Inform patient for Medisave/Insurance claim he/she will need to stay for a minimum of 8 hours
6. Location of MAC

7. To NBM / take light breakfast
8. DM medication to stop*
9. Antiplatelet medication to stop*
10. Medication to continue*
11. Instruct patient to bring along the medications if not sure*
12. The activation of chemotherapy medication for VIR IT MTX* (to confirm with Doctor for activation of chemotherapy)

* if applicable