

Reducing Excessive Antibiotic Prophylaxis in Ear, Nose, and Throat (ENT) Surgeries, A CPIP

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Mission Statement

Reducing excessive* perioperative antibiotic prophylaxis** in TTSH ENT from 76% to <10% in 6 months

* Defined as deviation from guideline

** Focusing on thyroid/parathyroidectomy, parotidectomy, tonsillectomy (level 1A evidence against antibiotics)

Team Members

	Name	Designation	Department
Team Leader	Dr Li Hao	Senior Consultant	Otorhinolaryngology
Team Members	Adj Asst Prof Chong Yaw Khian	Senior Consultant	
	Dr Gan Yijin Jereme	Consultant	
	Dr Ryan Lee Jin Hern	Medical Officer	
	Dr Rachel Leong Wen Ge	Service Senior Resident	
	Dr Lim Wan Qi	Resident	
Dr Vicky Ng Che Yee	Senior Consultant	Anaesthesiology, Intensive Care & Pain Medicine	
Ms Bernice Tan Siqin	Assistant Manager	Clinical Ops (Surgery)	

Evidence for a Problem Worth Solving

Singapore Antibiotic Surgical Prophylaxis Guideline 2022

Otorhinolaryngology

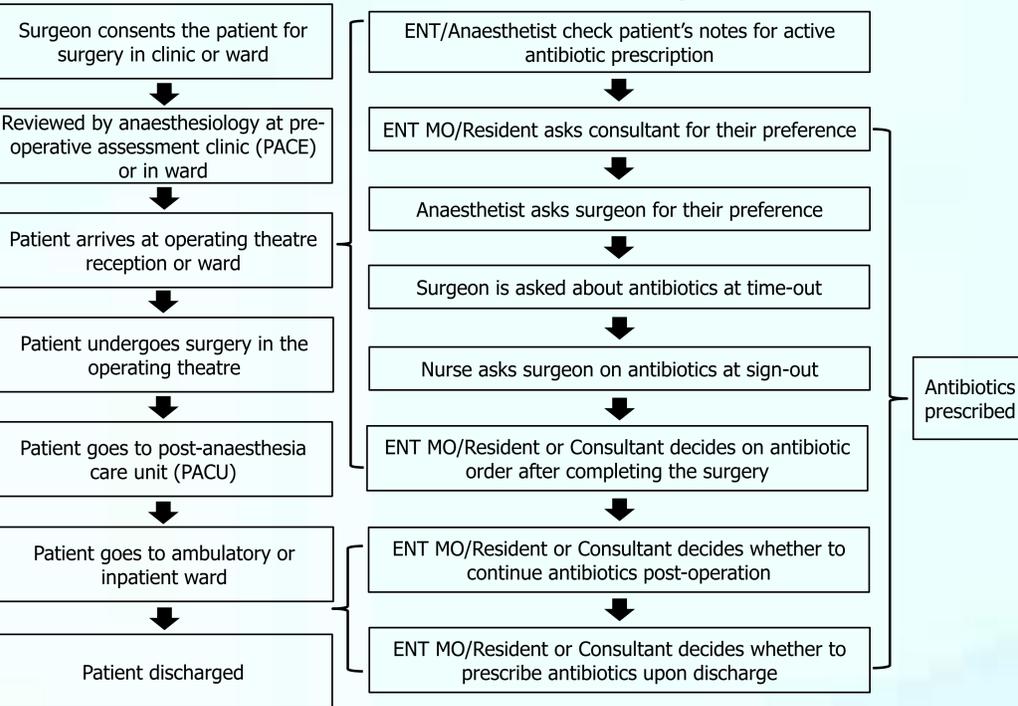
Table 8: Recommended Prophylaxis for Otorhinolaryngology Procedures

Type of Surgery	First line	Alternative for Severe Penicillin Allergy	Duration	Comments	Level of Evidence (Grade)
Clean head and neck (thyroidectomy, parotidectomy, salivary gland excisions)	Not recommended	Not recommended	NA		1+ (Grade A) 1,248-251
Specific Procedures					
Tonsillectomy	Not recommended	Not recommended	NA		1+ (Grade A) 1,248,274,275

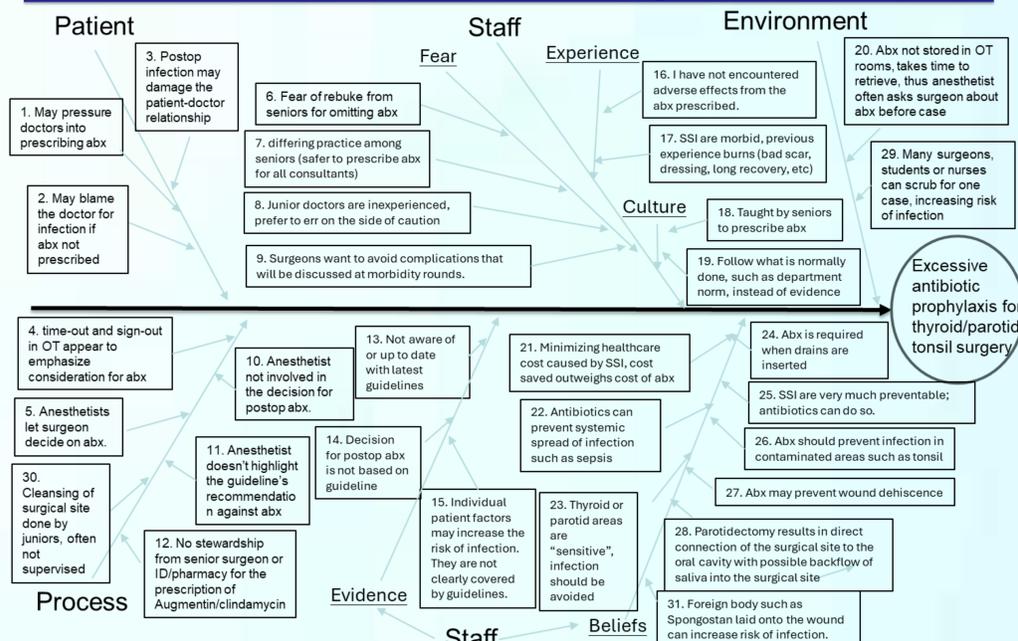
Flow Chart of Process

MACRO FLOW

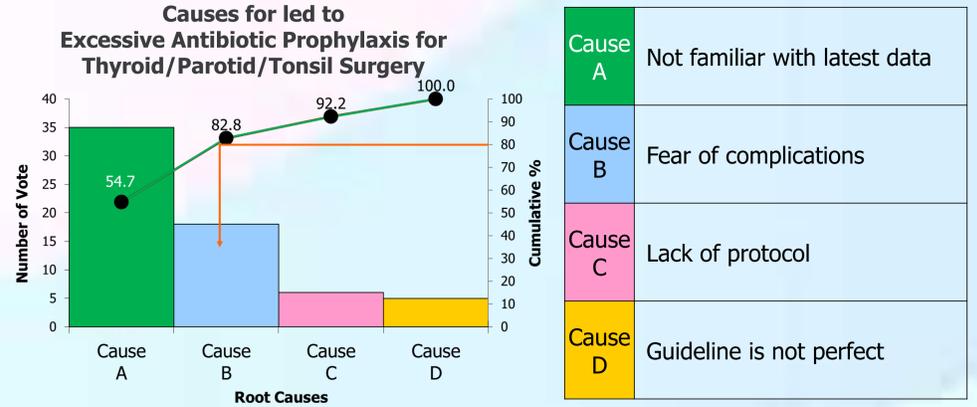
MICRO FLOW of Prescription Process



Cause and Effect Diagram



Pareto Chart



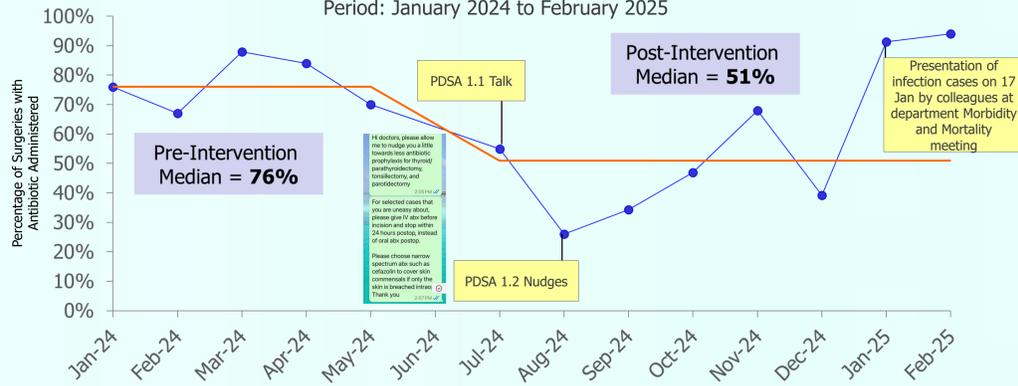
Implementation

Root Cause	Intervention	Implementation Date
Cause A: Not familiar with latest data	1. Review the evidence on antibiotic prophylaxis, and side effects. 2. Present team leader's data on surgical site infection without antibiotics	15 Jul 2024
Cause B: Fear of complications	3. Slogan "We don't need Augmentin to augment us, right?"	

Results

Percentage of Surgeries with Antibiotic Administered

Period: January 2024 to February 2025



	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25
No. of Case	29	27	25	37	10	20	34	35	32	25	23	23	32

Balance Measures	Definite Infection Rate = Median 0%, Mean = 3%
	Possible Infection Rate = Median 5%, Mean = 6%

Cost Savings

	Pre-Intervention	Post-Intervention
Cost of antibiotics	30 x 76% x \$11.8 x 12 = \$3,228.5	30 x 29% x \$11.8 x 12 = \$1,231.9
Manpower cost in dispensing and administering the antibiotic	(Pharmacist \$1.47+ staff nurse \$1.09 + medical officer \$1.41) per min x 10 mins x 30 x 76% x 12 = \$10,861.9	(Pharmacist \$1.47+ staff nurse \$1.09 + medical officer \$1.41) per min x 10 mins x 30 x 29% x 12 = \$4,144.7
Cost of care for diarrhoea, nausea, allergic reaction from antibiotics	30 x 14% x \$500 x 76% x 12 = \$19,152	30 x 14% x \$500 x 29% x 12 = \$7,308

Cost Savings (Annualized) \$20,557.80

Lessons Learnt

- Difficult to motivate team members if the mission causes trepidation
- Team leader needs to lead by example to overcome trepidation
- Lack of protocol is not as important as lack of personal motivation to change
- More data, less fear.
- HOD support is impactful
- Behavioural change can be overnight

Strategies to Sustain

- Regular reporting of infection rate without antibiotics, especially in superficial parotidectomy (may benefit from prophylactic Augmentin).
- Reducing duration and spectrum of antibiotic prophylaxis may be more feasible than eliminating it
- Gathering feedback from surgeons about antiseptic practice and concerns
- PDSA 2: Individualised reporting of infection rates and side-effects of antibiotics