Improving Quality of Surveillance OGDs in Patients with Gastric Intestinal Metaplasia

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Mission Statement

To improve the quality* of surveillance Oesophago-Gastro-Duodenoscopy (OGD)s in patients with Gastric Intestinal Metaplasia (IM) from 65.5% to > 90% in 6 months.

Acceptable quality* is defined as adequate photo-documentation of all parts of the stomach

Team Members

	Name	Designation	Department
Team Leader	Dr Abdul Kareem Saleem Ahmed	Consultant	GS
Team Members	Dr Danson Yeo Xue Wei	Consultant	GS
	Dr Lester Chong Rhan Chaen	Senior Resident	GS
	Ms Neo Chee Hoon	Senior Nursing Manager	Endoscopy Centre
Sponsor	Adj A/Prof Kaushal Sanghvi	Senior Consultant	GS
Facilitator	Dr Martin H'ng Weng Chin		

Evidence for a Problem Worth Solving

1. Gastric Intestinal metaplasia (IM) is a pre-neoplastic condition. It is a common finding and is seen in at least 30% of patients who undergo OGDs for dyspepsia.
2. Acceptable quality* OGDs help for accurate risk stratification of extent of IM and pick up of early gastric cancers which can be treated with better outcomes.
   Acceptable quality* is defined as adequate photo-documentation of all parts of the stomach.
3. What's the significance of IM?

Pre-cancerous lesion

a) Chronic atrophic gastritis and intestinal metaplasia (IM) are considered to be precancerous conditions (ESGE 2019)
b) Correa's sequence IM is the "breaking point" of carcinogenesis between chronic active gastritis, i.e., the benign, completely reversible step of the sequence, and dysplasia, i.e., the non-invasive neoplasia.

Incidence of gastric cancer in IM

a) Dutch cohort 61 707 patients with IM, gastric ca developed in 874 cases, corresponding to a cumulative 10-year incidence of 1.8%, with an estimated yearly incidence of 0.18%. (de Vries AC, Gastroenterology, 2008)
b) Japanese trial of 1246 patients with IM and HP+ve, follow-up 7 years, 6.4 RR (Uemura N, NEJM, 2001), Korean Study of 541 patients with mod-severe IM, RR 7.52 (Cho SJ, Helicobacter, 2010).

Current Performance of a Process

18-20 surveillance OGDs done per month	
Month	**Percentage Acceptable Quality OGDs**
Jun 2018	63%
Aug 2018	68%
Median	**65.5%**

Note:
- All surveillance endoscopies done in the month of June 2019 were retrieved.
- The photographs taken is assessed independently by two reviewers (1 Associate Consultant & 1 Senior Resident) based upon current guidelines.
- Any difference of opinion deferred to third reviewer.

Flow Chart of Process

MACRO FLOW

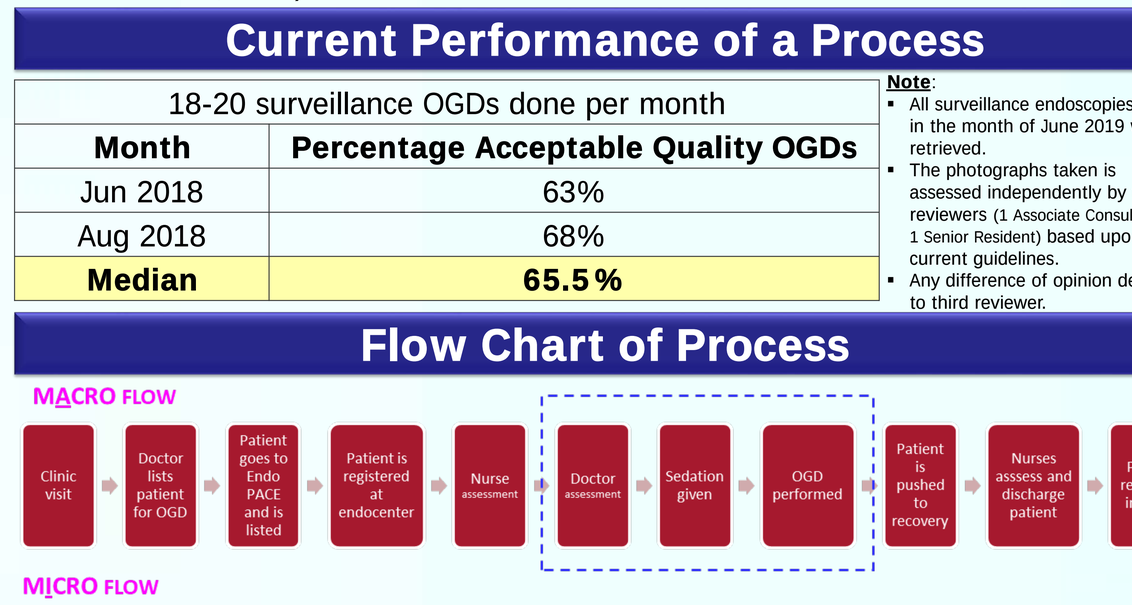
Clinic visit → Doctor lists patient for OGD → Patient goes to Endo PACE and is listed → Patient is registered at endocenter → Nurse assessment → Doctor assessment → Sedation given → OGD performed → Patient is pushed to recovery → Nurses asssess and discharge patient → Patient reviewed in clinic

MICRO FLOW

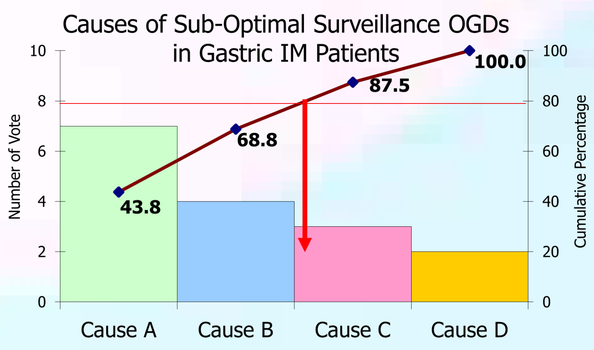
Doctor assessment → LA sprayed → Sedation given → OGD inserted → Insufflation of gas in stomach → Head on view → Retroflex to view fundus → Pictures taken by pressing paddle → Biopsies taken → Scope withdrawn

No Sedation given

Cause and Effect Diagram



Pareto Chart

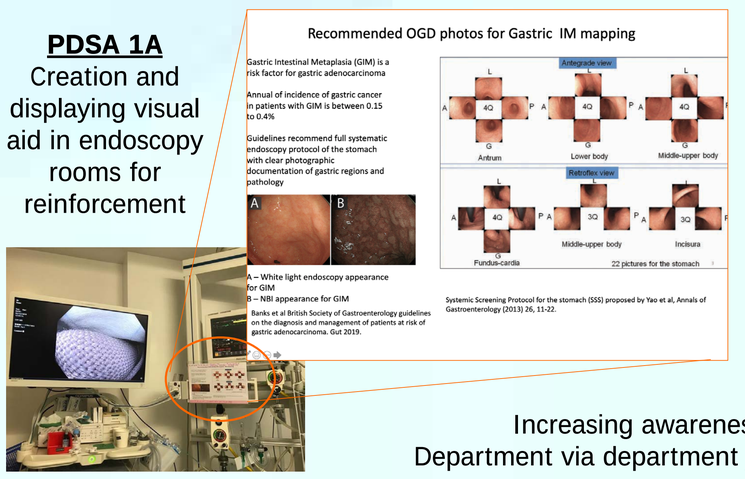


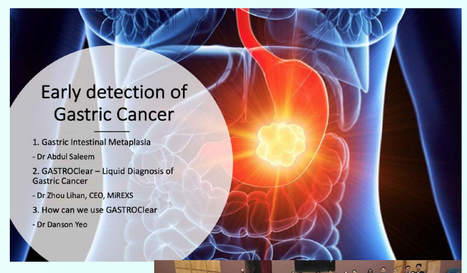
Cause A	Lack of awareness of significance of gastric IM
Cause B	OGD slot of IM mapping inadequate
Cause C	Lack of consensus of IM surveillance frequency
Cause D	Too many patients

Implementation

Root Cause	Intervention	Implementation Date
Lack of awareness of significance of gastric IM	**PDSA 1A**: Creation and displaying visual aid in endoscopy rooms for reinforcement	1 Dec 2019
	PDSA 1B: Increasing awareness within GS Department via department journal club	1 Jan 2020

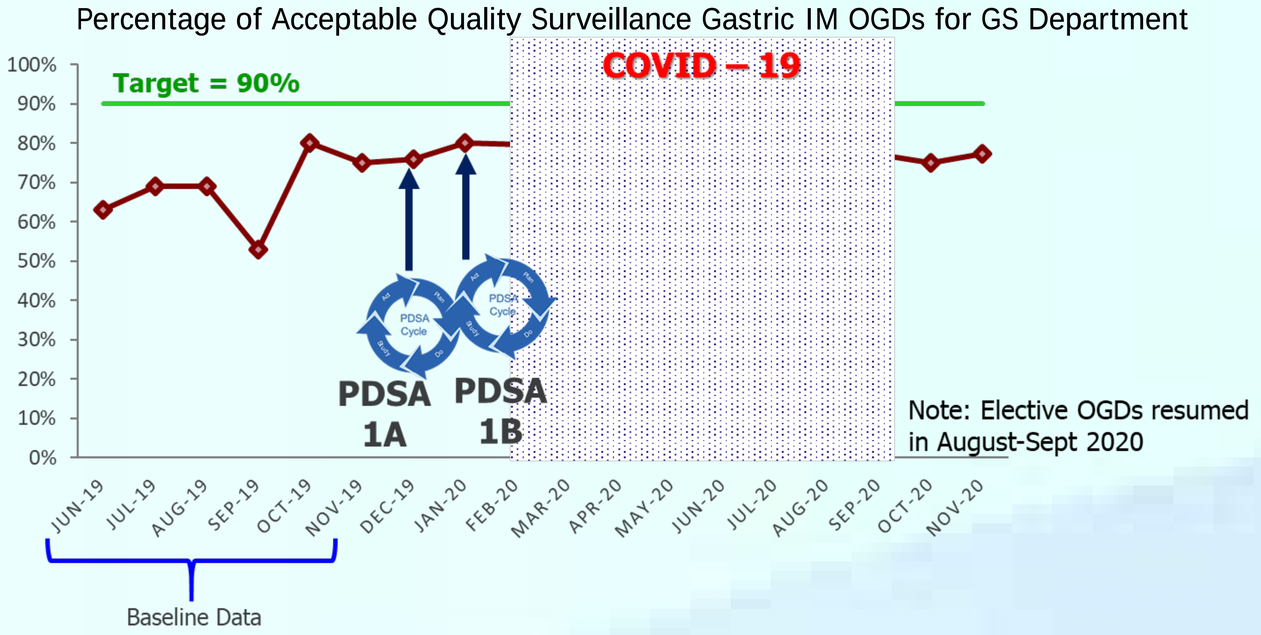
PDSA 1A
Creation and displaying visual aid in endoscopy rooms for reinforcement





PDSA 1B
Increasing awareness within GS Department via department journal club

Results



Cost Savings

1. Avoid repeating OGDs for unacceptable quality
   - Average about 20 IM scopes a month
   - 240 IM scopes a year
   - Cutting down unacceptable quality scopes from 30% to < 10% (48 scopes)
   - Cost of repeating 48 scopes = 48 scopes x $2,000 (non-subsidised rates) = $96,000 per year
2. Cost of missed cancers
   - Risk of EGC in surveillance scopes: 1 in 74, risk of missing cancers 10%[1]
   - Difference of 23,000 USD between treatment cost of Stage 4 and Stage 1 gastric cancer within 1 year[2]
   - 15 EGCs over 5 years, 1.5 EGCs missed, over 5 years cost savings = 1.5 x 23,000 USD x 5 years = 172,500 USD (34,500 USD per year)

[1] Pimenta-Melo AR, et al. Missing rate for gastric cancer during upper gastrointestinal endoscopy: a systematic review and meta-analysis. Eur J Gastroenterol Hepatol. 2016;28(9):1041–1049.
[2] Analysis of medical expenses according to the stage of gastric cancer during the first year after diagnosis. Sung Soo Kim et al Journal of Clinical Oncology 2014 32:3

Lessons Learnt

1. Good understanding of the problem at hand
2. Collaboration and buy-in from stakeholders
3. Celebrate small wins
4. Expect the unexpected

Strategies to Sustain

1. Point of contact within each team, to champion the cause.
2. Scheduling IM scopes into a single list, to improve oversight.
3. Ad-hoc review of scope quality during clinic visit