Improvement of biologic infusion compliance rate Singapore Healthcare Management 2019

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Background of the problem

Treatment compliance with regular biologics infusions is important to ensure optimal treatment response and to minimize secondary loss

However, patients often miss or delay their scheduled infusion. An internal audit that was done over the last 1 year has observed as many as 21% of patients did not attend/ delay their regular scheduled infusion.

Mission Statement

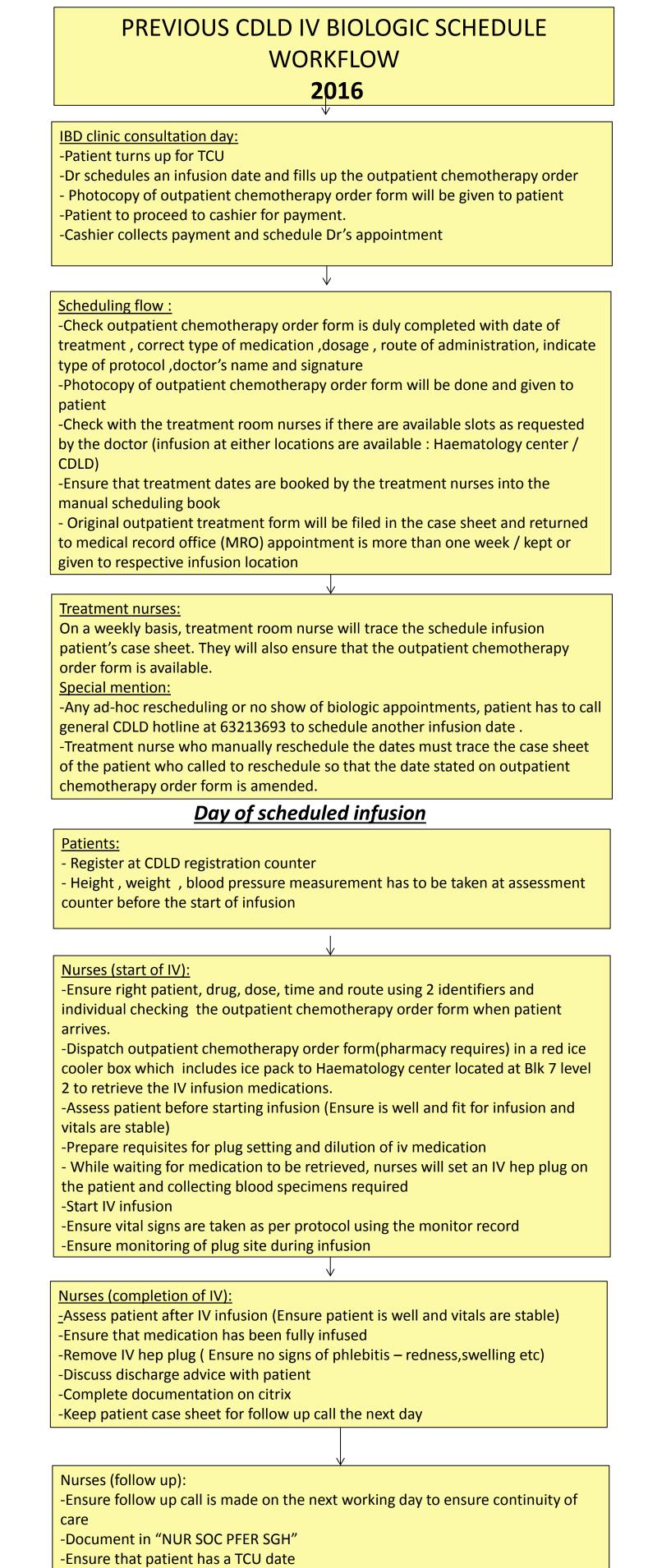
To reduce the non-compliance rate of biologics infusion for patients with Inflammatory Bowel Disease (IBD) to less than 15%

Analysis of problem

The primary goal is to optimize patients' compliance and reduce the non compliance rate of patients with IBD who receive biologic infusion from 21% to less than 15%.

The diagram shows the initial workflow for biologic infusion scheduling

• Several factors in the workflow contributes to the delay in infusion regime



PRESENT CDLD IV BIOLOGIC SCHEDULE WORKFLOW 2018

IBD consultation day + scheduling flow: -Dr to fill up the outpatient treatment record form -SSN Elaine will book the appointment in the OAS for biologic infusions done in CDLD only immediately in the IBD room (SPSA Aishah / SPSA Ayu will be the coverage). -Photocopy of treatment record form will be given to patient

Patient to proceed to cashier for payment. -Cashier collects payment and schedule Dr's appointment / pt does drop and go **Room assistant:**

- Check outpatient treatment record form is duly completed with date of treatment, correct type of medication, dosage, route of administration, indicate type of protocol, doctor's name and signature Original outpatient treatment form order form to file in the Red file "GAS IBD" Biologic infusion booking schedule" in treatment room 25 according to alphabetical order. -Case sheet to return to MRO if appointment is more than one week.

Treatment Nurse: Daily review of biologic infusion plan schedule booking list in the red file - Send reminder SMS using OAS system to patient -Retrieve original outpatient treatment record order form from red file -Any ad-hoc rescheduling or no show of biologic appointments to refer patient to call or SMS IBD hotline at 9799 3520 (outpatient treatment record form amendments will be followed up by treatment nurses)

Day of scheduled infusion

	Patient :					
	-Proceed to Blk 3 Level 1 pharmacy to purchase IV biologic medication wi					
	prescription					
	-Register at CDLD self-registration kiosk -Proceed to assessment counter for height, weight and blood pressure measurement					
	- Proceed to treatment room 25 for infusion					

Nurses (start of IV): -Ensure right patient, drug, dose, time and route using 2 identifiers and individual checking against treatment order record form when patient arrives. -Assess patient before starting infusion (Ensure is well and fit for infusion and -Prepare requisites for plug setting and dilution of iv medication -Start IV infusior -Ensure vital signs are taken as per protocol using the monitor record -Ensure monitoring of plug site during infusion

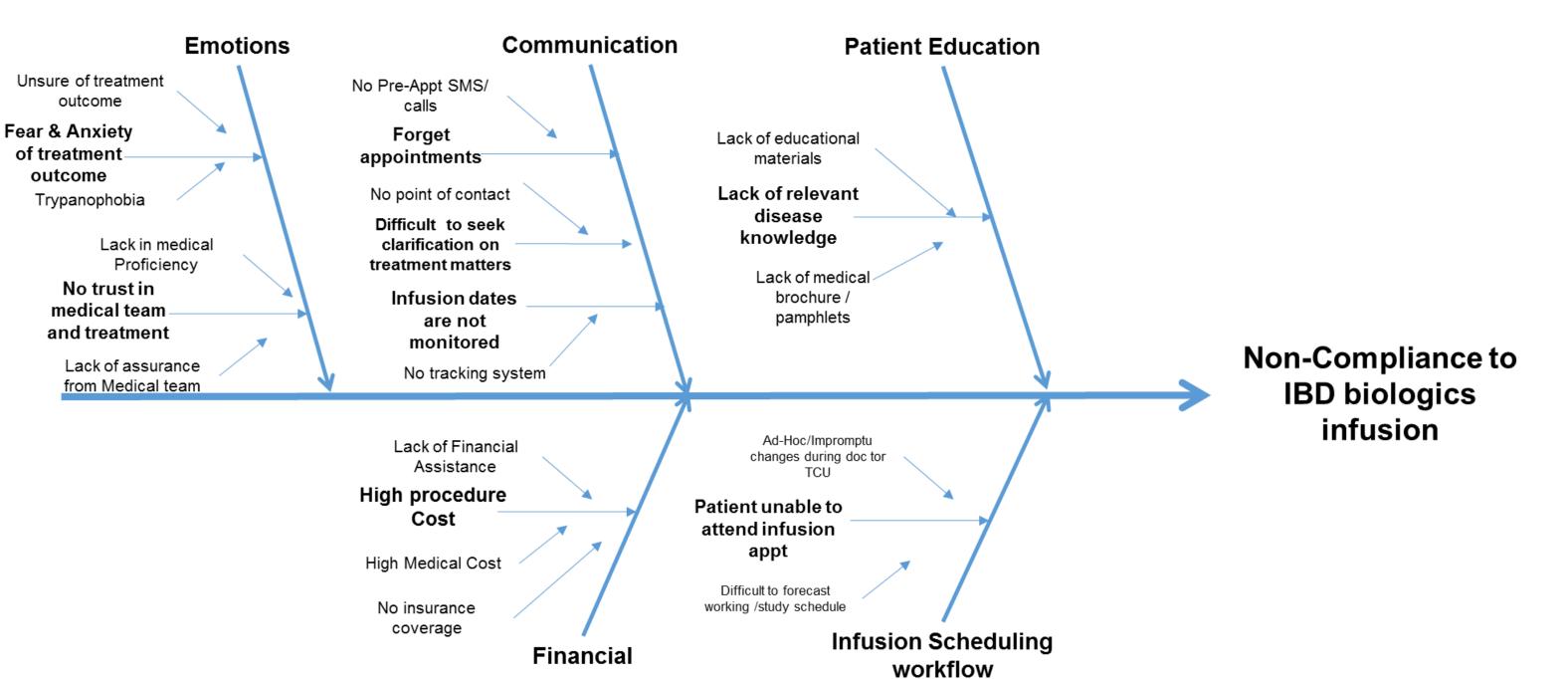
Nurses (completion of IV): -Assess patient after IV infusion (Ensure patient is well and vitals are stable) -Ensure that medication has been fully infused -Remove IV hep plug (Ensure no signs of phlebitis – redness, swelling etc) -Discuss discharge advice with patient -Complete documentation on Citrix -Keep patient case sheet for follow up call the next day

-Ensure follow up call is made on the next working day to ensure continuity of -Document in "NUR follow up note SOC SGH" -Ensure that patient has a following iv infusion date / TCU -Return case-sheet if iv infusion/ TCU date is more than one week.

Methods:

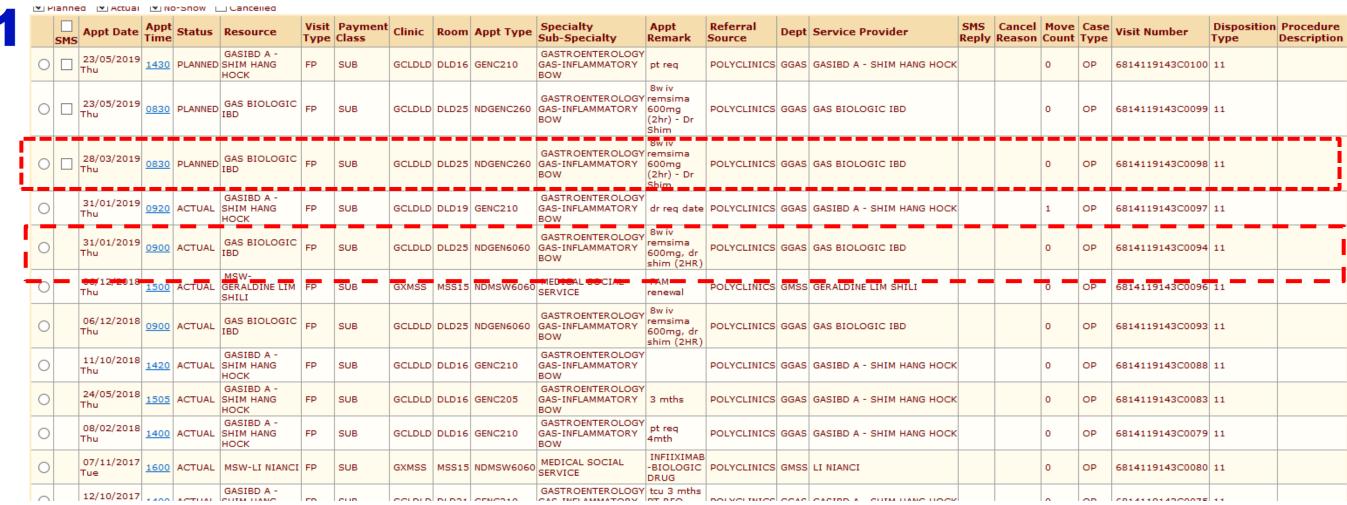
-Return case-sheet if iv infusion/ TCU date is more than one week.

The possible causes non-compliance were analyzed using the cause and effect diagram. Kaizen methodology was introduced to further focus on the cause of non compliance. Infusion scheduling and communication were identified as the key causes of patients' non compliance.

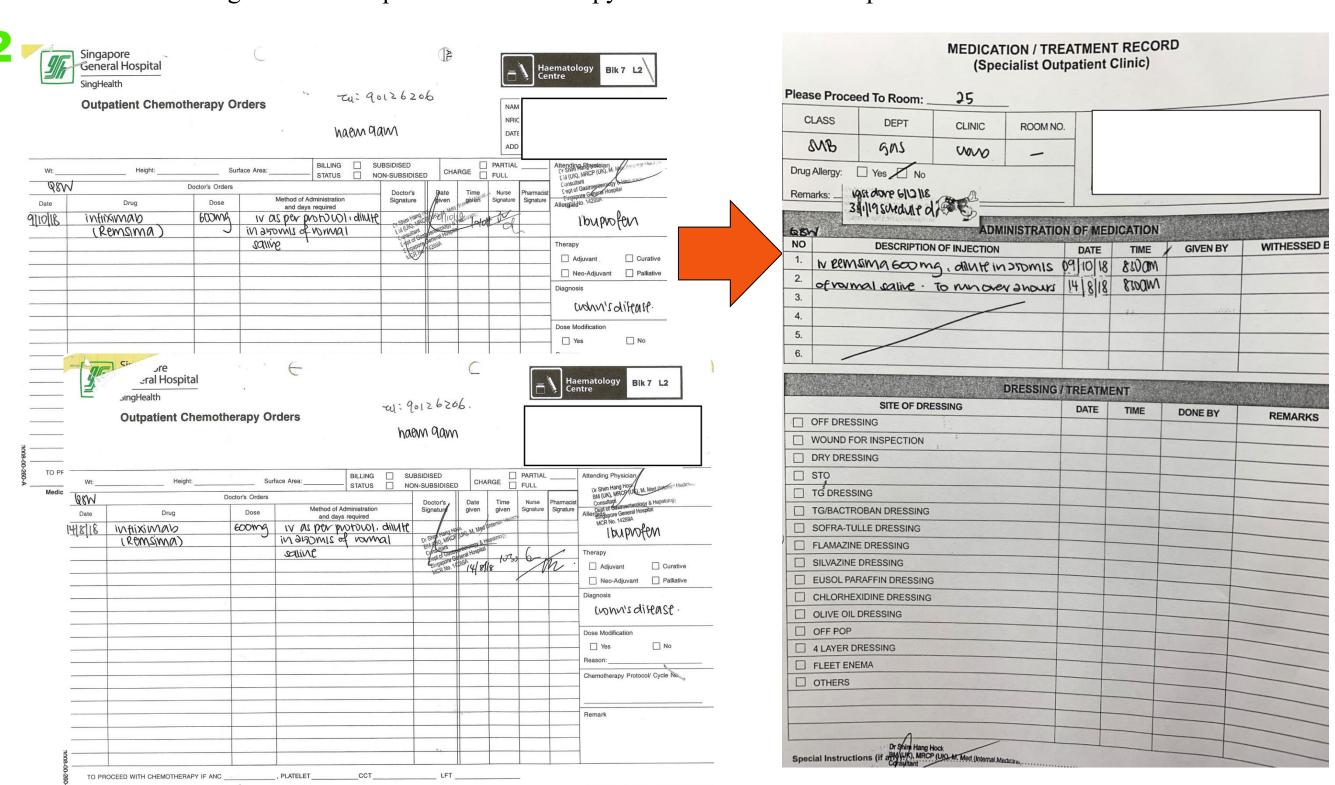


Interventions / Initiatives

Planned infusion dates are keyed into the outpatient administrative system (OAS) for easy tracking and referencing. Automated SMS reminders are sent to patients one week before the infusion appointment



Infusion appointments are made at least 3 months in advance by an IBD nurse / physician so that patients are able to forecast their treatment regime. The outpatient chemotherapy order form has been replaced with the treatment record form.



As biologics are costly, the IBD team ensures that patients who requires financial assistance for biologics are referred to medical social services for the application of medical assisted fund (MAF). The funding criteria renewal will be reviewed every 6 monthly to ensure that patients meets the requirement.

Patients who met the medical criteria and are eligible for subsidy depending on the means testing will be issued a financial assistance approval slip from the medical social worker. The approval slip has to be presented to the pharmacy upon collection of medication

Patients who are on biologic infusion requires a lot of assistance and support when receiving treatment. The IBD biologic nurse role is created to assist , coordinate, schedule biologic infusion treatment dates ,act as a point of contact for IBD patients and follows up on patient 's funding criteria renewal.

MEDICAL SOCIAL SERVICES MSW : Gwen sang Sau Kwan Institution : Singapore General Hospital Tel : 6326-5059 Date : 30/11/2018 Head, Medical Social Service

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Results

There is a decrease in the non-compliance percentage rate over the period of 6 months from 21% (year 2017) to 4% (year 2018).

The rate of non compliance was mainly due to the inefficient infusion scheduling

workflow and communication between patient and the healthcare team.

- After implementing the improved biologic scheduling workflow, there is a significant decrease in non compliance percentage as seen in the graph (Figure 1).
- The estimated cost savings over 1 year amount to \$19,417.60 (Figure 2)

		*FIG	URE 1				
						Drug	N
Aug						Remicade	2
July						Remsima	2
June				■ Post	implementation	Vedolizumab	2
May	-			(2018 ■ Pre i	8) mplementation	Total number of mi 15120 mins	ins save
April				(2017	7)	Staff Nurse /Senior Amount of facility a	and con
March						\$138.80 x 68 = \$94 Total amount saved	
(0% 10%	% 20%	30%	40%		CC	<u>)ST</u>

*FIGURE 2							
Drug	Number of slots	Time taken (min)					
Remicade	20	240mins / slot					
Remsima	28	240mins /slot					
Vedolizumab	20	180mins/ slot					
Total number of mins saved over 1 year : (240x20)+(240x28)+(180x20) = 15120 mins							
Staff Nurse /Senior Sta Amount of facility and	·						
\$138.80 x 68 = \$9438.40 Total amount saved over 1 year : \$9979.20 + \$943 8.40 = COST SAVINGS : \$19,417.60							

Sustainability Plans:

6 monthly statistics are collected and reviewed to ensure the sustainability of the project. In time to come, we hope to promote and increase the number of nurse coordinators to further enhance patients' compliance rate.

Conclusion:

The implementation of the revised infusion scheduling workflow has successfully decreased the non compliance rate from 21 % to 4 %. Currently, the automated short message service (SMS) reminder and online outpatient administrative system (OAS) appointment booking allow patients to keep track of their appointments conveniently. The OAS helps to ensure continuity of patients' treatment as it enables the healthcare workers track and monitor the infusion schedules and regimes. The introduction of the new workflow has improved better treatment response and patient outcome. The positive outcome of this project has created a spinoff for the team to start another quality improvement project to further shorten the infusion duration, aiming to improve the utilization of the limited infusion clinic resources and the development of IBD education booklet which is available from May 2019.