Project Title

Pre-Planned Discharges and Streamlining of Postnatal Medications

Project Lead and Members

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Organisation(s) Involved

KK Women's and Children's Hospital

Healthcare Family Group(s) Involved in this Project

Pharmacy, Nursing

Applicable Specialty or Discipline

Nutrition and Dietetics

Aims

- To shorten waiting times for inpatient discharges of post-natal patients by reducing percentage of post-natal prescriptions printed after 10:30am to ≤26% (at least 40% from baseline) and dispensed after 11:30am to ≤15% (at least 40% from baseline) respectively.
- To streamline the routine post-natal medications and compute the time and cost savings reaped, based on the principles of effectiveness, safety, cost-effectiveness and patient-centeredness.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Project Category

Care & Process Redesign

Quality Improvement, Value Based Care, Discharge Planning

Keywords

Post-Natal Medications, Pre-Planned Post-Natal Discharges, Streamline Routine Postnatal Medications

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Pre-planned Discharges and Streamlining of Postnatal Medications

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SingHealth

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Background

- A monthly average of 1500 postnatal prescriptions are processed by KKH Women's Inpatient Pharmacy, constituting 50% of the discharges[1].
- A baseline median 37% (interquartile range 31-39%) of the postnatal prescriptions were dispensed after 11:30 am, lengthening waiting times for these patients who are expected to be discharged by 11:30 am.
- A major constraint is the time the prescription is printed as it was found that a baseline median 43% (interquartile range 41-50 %) of the postnatal prescriptions were printed after 10:30 am on the day of discharge, resulting in insufficient time for processing and delaying of discharges *(refer to Figure 1)*.
- In addition, the routine postnatal medications that were prescribed have not been reviewed for years and hence may not be guided by the best-available evidence and patient-centeredness.

Objectives

- To shorten waiting times for inpatient discharges of postnatal patients by reducing percentage of postnatal prescriptions printed after 10:30 am to ≤26% (at least 40% from baseline) and dispensed after 11:30 am to ≤15% (at least 40% from baseline) respectively.
- To streamline the routine postnatal medications and compute the time and cost savings reaped, based on the principles of effectiveness, safety, cost-effectiveness and patient-centeredness.

Methodology

- Root cause analysis was conducted with key stakeholders comprising pharmacy staff, physicians and nurses *(refer to Figure 2)* and the following strategies for change were implemented:

Phase 1: Streamlining of routine postnatal medications based on evidence-based practice[2] and patients' needs[3]

Decreases the number of medications to be ordered by physicians and processed by pharmacy

Phase 2: Implementation of pre-planned postnatal discharges *(refer to Figure 3)*

Physicians can order even when patient is still in delivery suite (i.e. not in peripheral wards).
Physicians do not need to wait for rounds to end to order (which may end late).
Discharge load is distributed to other physicians and lull periods.

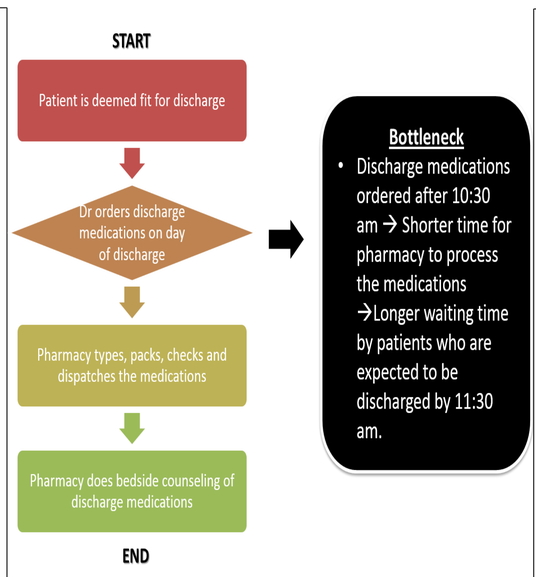

Figure 1: Bottleneck of discharge prescription processing.

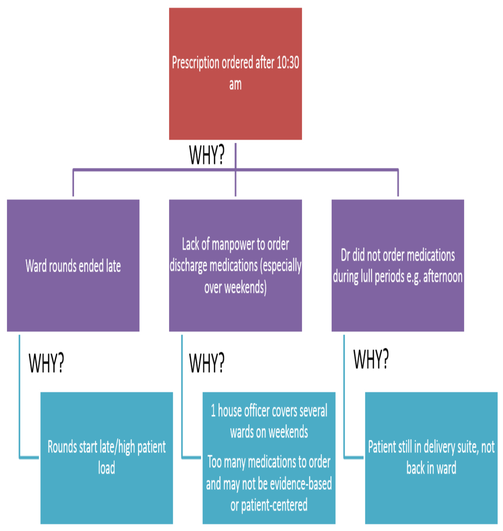

Figure 2: Root cause analysis tree diagram.

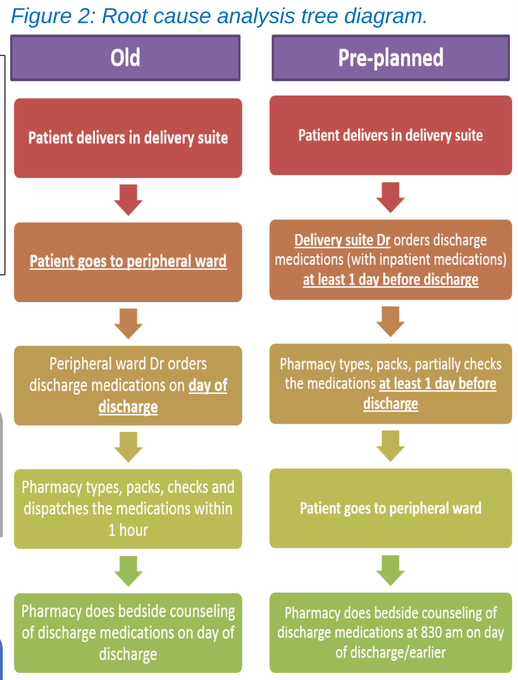

Figure 3: On the left depicts the old workflow of postnatal discharges and on the right depicts the new workflow of pre-planned postnatal discharges.

Results

Phase 1: Streamlining of Postnatal Medications

The streamlining of postnatal medications *(Table 1)* resulted in total healthcare savings of $702,800 per year and 2380 man-hours saved per year *(Figure 4 and Figure 5)*.

Before	After	Remarks
Sangobion for caesarean delivery and Obimin for normal vaginal delivery	Sangobion 2 caps OM (1 box) for ALL postnatal patients	• Standardize to 60 mg elemental iron (2 capsules of Sangobion) based on international guidelines[2]. • Rounding up to boxes expedites the process of packing by reducing the time needed to count and pack loose capsules. • Nutrition counselling is recommended based on international guidelines[2]. Collaborated with Dietician to come up with postpartum nutritional information leaflet which is given to patients upon discharge.
Ascorbic acid	Removed ascorbic acid	• Limited role of ascorbic acid 300 mg OM for wound healing in postpartum patients.
Mefenamic for 1-2 weeks	Mefenamic for 1 week	• Based on a study which reviews patients' usage of routine postpartum medications, the median number of days which painkillers were used by patients post-discharge is less than 1 week regardless of normal vaginal delivery or caesarean delivery[3].
Antacid for 1-2 weeks	Famotidine 20 mg BD for 1 week	• Limited role of antacid in gastropathy related to Nonsteroidal Anti-Inflammatory Drugs (NSAIDs).
No galactogogues in order set and lactation consultants do not have rights to prescribe them	Included galactogogues in order set and requested rights for lactation consultants to prescribe them.	• Previous workflow includes lactation consultant writing on clinical document to order galactagogues followed by staff nurse alerting ward physician to order. • The streamlined workflow allows lactation consultants to order galactagogues directly without having to go through nurses and ward physicians. • Setting up of a galactagogues order-set enables ease of ordering.

Table 1: Details on the streamlining of postnatal medications.

Results

Drug (Actions from Streamlining)	Group	Current Cost* ($)	Estimated Cost* from Streamlining ($)	Cost* Savings ($)
Obimin Multivitamin Tablet (30s) (switch to sangobion 2 caps OM) (Based on 100s)	Non-Std	$28.40	$12.00	$16.40
Ascorbic Acid 100mg Tablet (remove)	STD1	$1.50	$0.00	$1.50
Mefenamic Acid 250mg Capsule (reduce to 1 week)	STD1	$9.00	$5.00	$4.00
Antacid with Simethicone (Switch to famotidine 20 mg BD for 1 week)	STD1	$4.20	$1.40	$2.80
Total		**$43.10**	**$18.40**	**$24.70 (57% ↓)**

Total healthcare savings per year (estimating 14,000 deliveries) = **$345,800 per year**

*Cost based on non-subsidized patient

Figure 4: Cost savings for patients from streamlining of postnatal medications

Total $702,800 healthcare savings per year!

Processes from Streamlining	Average time needed to process old postnatal medications (hour per prescription)	Average time needed to process streamlined postnatal medications (hour per prescription)	Time saved with streamlined (hour per prescription)	Man-hour cost savings per prescription ($ per prescription)^
• No need to count loose capsules of Sangobion as it is packed by boxes • No need to order, type, pack, check and counsel vitamin C • Pack mefenamic acid and famotidine as 1 week instead of 2 weeks	0.85	0.68	0.17 (20% ↓)	$25.50

Total healthcare savings per year (estimating 14,000 deliveries) = **$357,000 per year**

^Man-hour rate computed based on $150 per hour.

Figure 5: Cost savings for healthcare from streamlining of postnatal medications

2380 man-hours saved per year!

Phase 2: Pre-Planned Postnatal Discharges

Goal of reducing % of prescriptions printed after 10:30 am to ≤26% achieved!

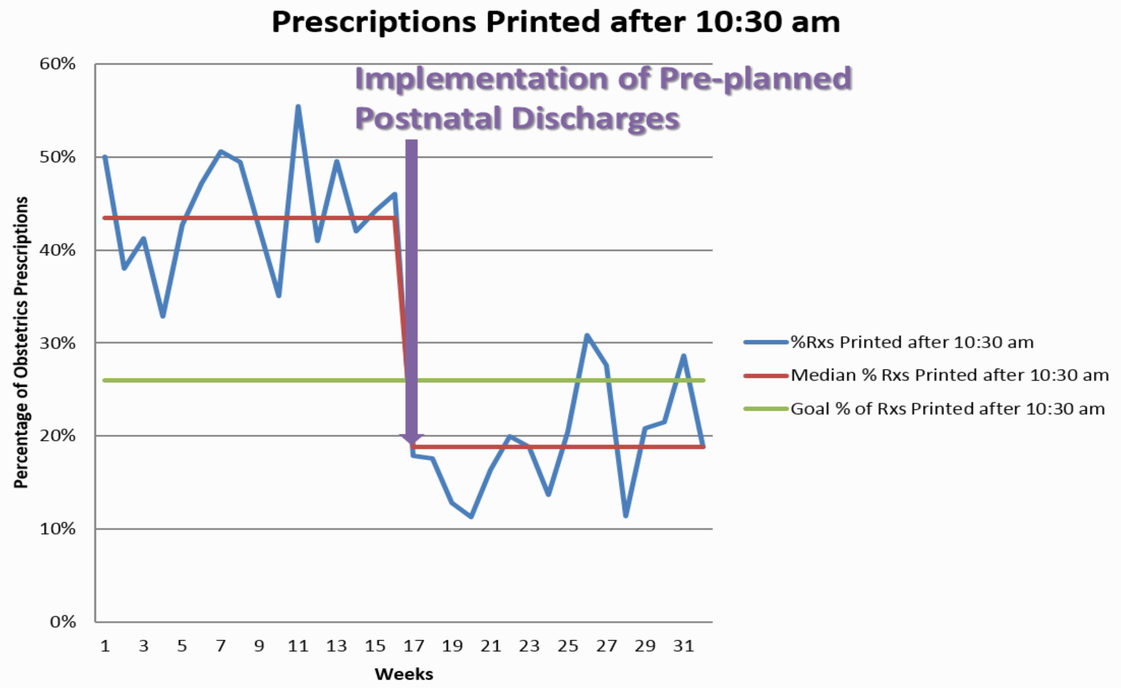

Figure 6: Of the 4712 postnatal prescriptions 4 months-post implementation of pre-planned postnatal discharges, the median percentage of postnatal prescriptions ordered after 10:30 am decreased to 19% (interquartile range 16-21%). Due to change of house officers in weeks 26 and 31 who had limited knowledge of the new pre-planned workflow, the percentage of prescriptions printed after 10:30 am surged. Action plans taken to prevent these deviations included: inclusion of information in Junior Doctors' Orientation Booklet, presentation to new junior doctors, putting up signage in delivery suite, reminder emails/messages are sent if number of pre-planned prescriptions are less than 10 per day.

Goal of reducing % of prescriptions dispensed after 11:30 am to ≤15% achieved!

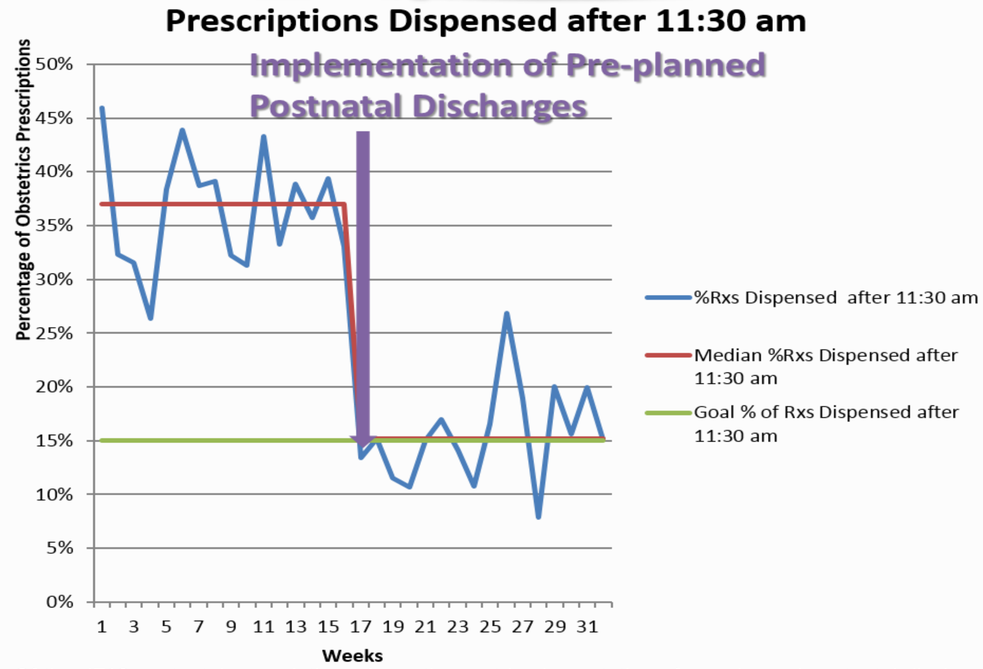

Figure 7: Of the 4712 postnatal prescriptions 4 months-post implementation of pre-planned postnatal discharges, the median percentage of postnatal prescriptions ordered dispensed after 11:30 am decreased to 15% (interquartile range 13-17%). The surge in percentage of prescriptions dispensed after 11:30 am in week 26 is as explained in Figure 6.

Conclusions

- The implementation of streamlining of routine postnatal medications and pre-planned postnatal discharges reduce waiting times for more patients while bringing significant healthcare cost savings for patients and healthcare providers.
- Further studies would be needed to evaluate whether similar benefits would be reproducible by extending to other specialties.

References

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3. Leow YC, Ling XY, Hui YYC, Seah HL, Faridah HB Mohd, Ang SB. September 2013. A Review of Routine Postpartum Medications used in KK Women's and Children's Hospital. Poster Presentation at 7th KKH Annual Scientific Meeting 2013