In Collaboration with

Middle East Forum on Quality & Safety in Healthcare **2023**

16-19 March, Doha

A8: Oral QI Presentations on FLOW, SAFETY, VALUE IMPROVEMENT (Session 1)

Healthcare Resilience in Extraordinary Times

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16-19 March, Doha

Medication Use Evaluations and Clinical Pathways to Standardize Patient Care for Hospitalized Patients Under Medicine Department.
A pharmacy-General Internal Medicine Departments Collaborative Work

Rana Moustafa AL-Adawi

Team lead of internal medicine clinical pharmacists-HGH

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Conflict of Interest

I have no conflict of interest or disclosure in relation to this presentation

Objectives

1. To standardize the clinical practice in managing the most common causes of patients' admission (such as electrolytes imbalance, and infectious diseases)
2. To optimize safe medications utilization through the collaboration between the internal medicine department and clinical pharmacy services at Hamad General Hospital (HGH).
3. To update the old 14 clinical pathways and initiate at least 5 new (1 to be done by 2 GIM CPs) by December 2022
4. To conduct at least 10 MUEs (1 per each GIM CP) by December 2022

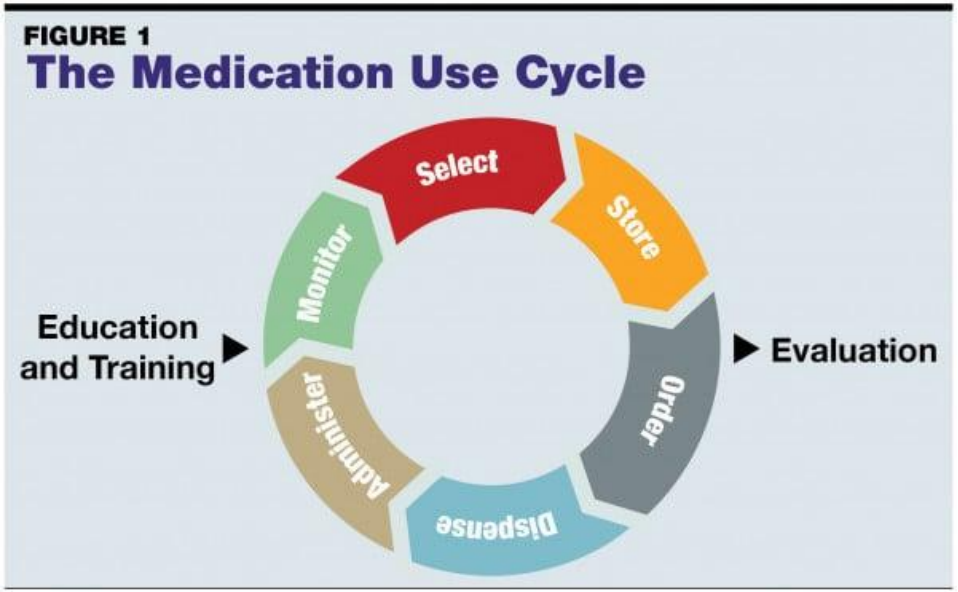
Background

CPs are integral to the multidisciplinary team

CPs detect inappropriate prescribing and monitoring of some medications

This raises safety concerns and triggers an idea

Medication use evaluation (MUE)



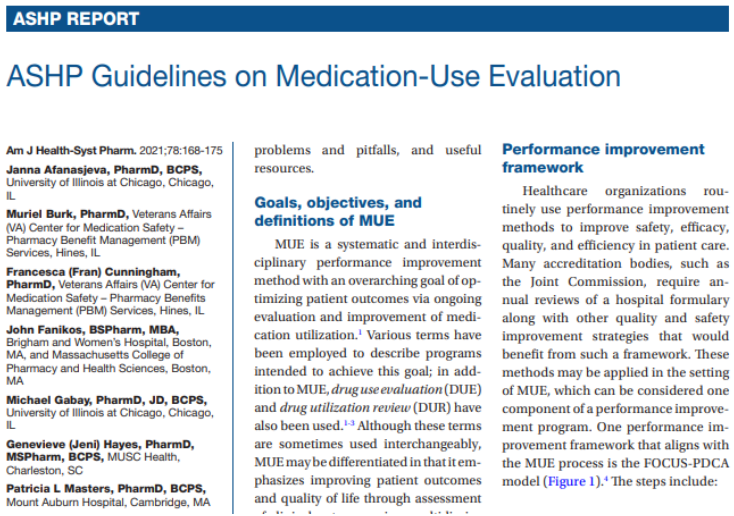
Cont. Background….

- Additionally, unstandardized management of different diseases were notices, which deprives the patients of receiving equal healthcare.

- Questioning the reasons beyond that showed the unavailability of standard updated clinical pathways/protocols; therefore, the collaboration between CPs and General Internal Medicine (GIM) physicians was introduce

Interventions

- Educating internal medicine clinical pharmacists about the American Society of Health-System Pharmacists (ASHP) criteria and the process of conducting MUEs [4].
- Retrieved and updated available pathways.
- Meetings and brainstorming sessions were conducted to prioritize medications for MUEs and new pathways development in collaboration with the GIM department.



ASHP REPORT

ASHP Guidelines on Medication-Use Evaluation

Am J Health-Syst Pharm. 2021;78:168-175

Janna Afanasjeva, PharmD, BCPS, University of Illinois at Chicago, Chicago, IL

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problems and pitfalls, and useful resources.

Goals, objectives, and definitions of MUE

MUE is a systematic and interdisciplinary performance improvement method with an overarching goal of optimizing patient outcomes via ongoing evaluation and improvement of medication utilization.[1] Various terms have been employed to describe programs intended to achieve this goal; in addition to MUE, *drug use evaluation* (DUE) and *drug utilization review* (DUR) have also been used.[1-3] Although these terms are sometimes used interchangeably, MUE may be differentiated in that it emphasizes improving patient outcomes and quality of life through assessment

Performance improvement framework

Healthcare organizations routinely use performance improvement methods to improve safety, efficacy, quality, and efficiency in patient care. Many accreditation bodies, such as the Joint Commission, require annual reviews of a hospital formulary along with other quality and safety improvement strategies that would benefit from such a framework. These methods may be applied in the setting of MUE, which can be considered one component of a performance improvement program. One performance improvement framework that aligns with the MUE process is the FOCUS-PDCA model (Figure 1).[4] The steps include:

PDSA ramps

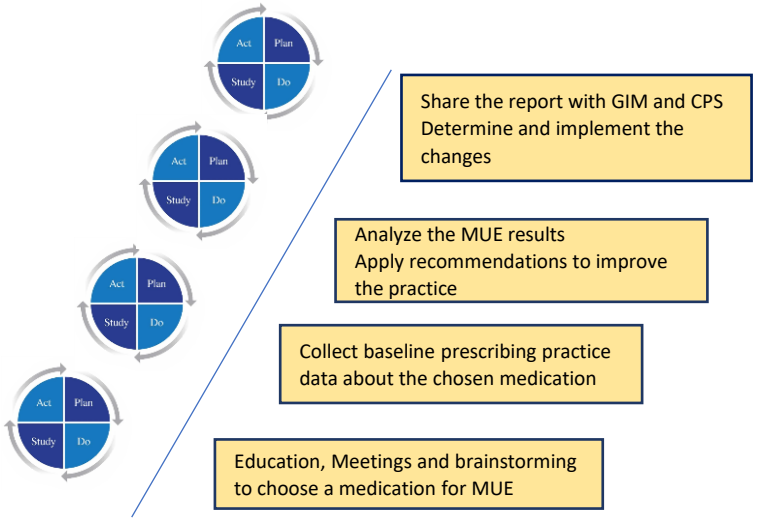


Figure 1: PDSA improvement model applied to all medication use evaluation

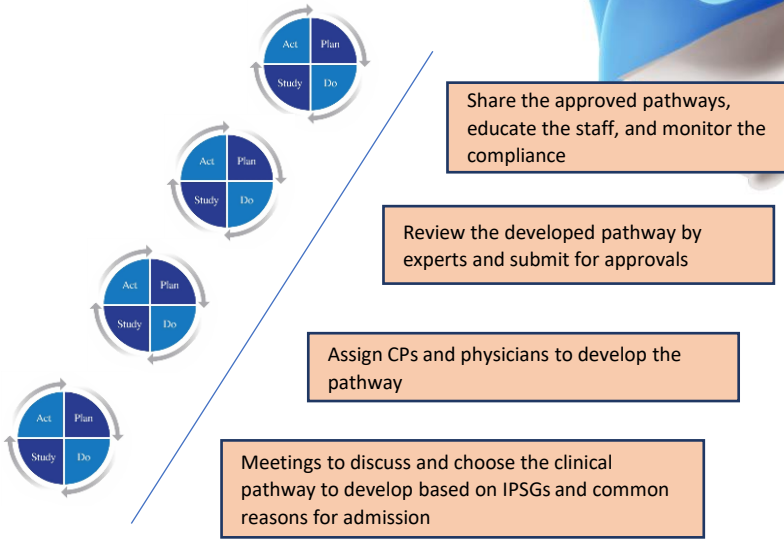
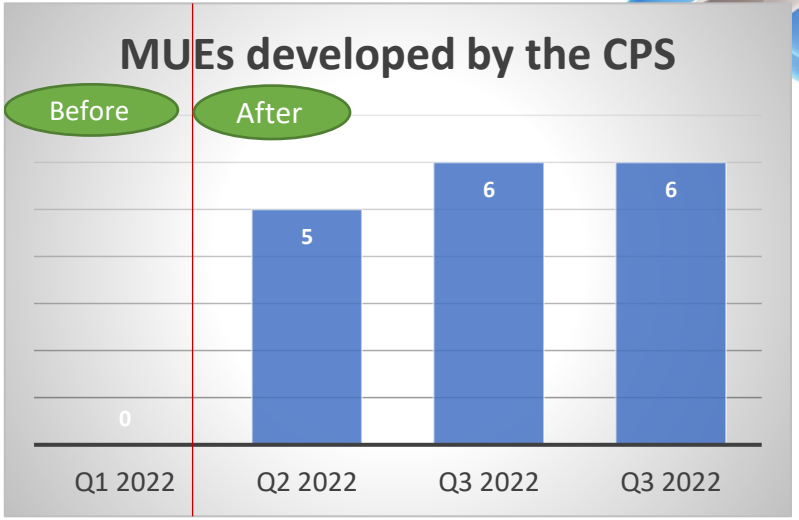


Figure 2: PDSA improvement model applied to develop clinical pathways

Results: MUEs

- ✓ A total of 17 MUEs were performed which exceeded our target
- ✓ Significant findings shared with internal medicine leaders and presented to CPs and GIM physicians during the morning report activity.

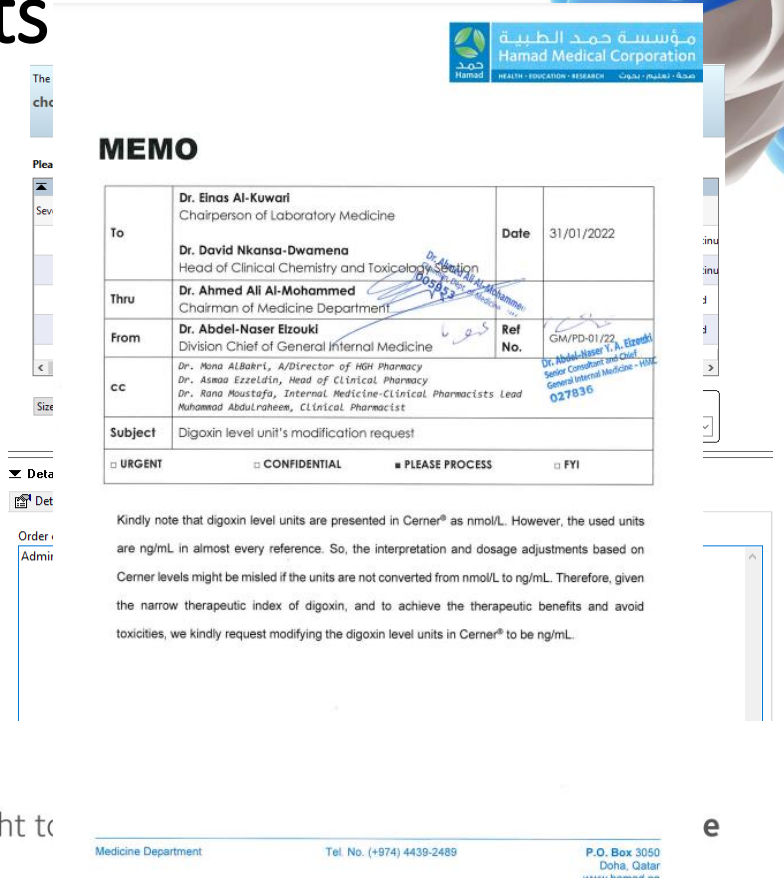


Continue results

✓ In response to the MUEs results:

- HICT tickets were raised to add order comments and fire an alert of significant drug-drug interactions (ex: cholestyramine and category D interactions).

- A memo was sent to the laboratory department to adjust units of the digoxin level results (based on the references).



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MEMO

To	Dr. Einas Al-Kuwari Chairperson of Laboratory Medicine Dr. David Nkansa-Dwamena Head of Clinical Chemistry and Toxicology Section	Date	31/01/2022
Thru	Dr. Ahmed Ali Al-Mohammed Chairman of Medicine Department		
From	Dr. Abdel-Naser Elzouki Division Chief of General Internal Medicine	Ref No.	GM/PD-01/22
cc	Dr. Mona AlBaker, A/Director of HGH Pharmacy Dr. Asmaa Ezzeldin, Head of Clinical Pharmacy Dr. Rana Moustafa, Internal Medicine-Clinical Pharmacists Lead Muhammad Abdulraheem, Clinical Pharmacist		
Subject	Digoxin level unit's modification request		

□ URGENT □ CONFIDENTIAL ■ PLEASE PROCESS □ FYI

Kindly note that digoxin level units are presented in Cerner® as nmol/L. However, the used units are ng/mL in almost every reference. So, the interpretation and dosage adjustments based on Cerner levels might be misled if the units are not converted from nmol/L to ng/mL. Therefore, given the narrow therapeutic index of digoxin, and to achieve the therapeutic benefits and avoid toxicities, we kindly request modifying the digoxin level units in Cerner® to be ng/mL.

Dr. Abdel-Naser Y. A. Elzouki
Senior Consultant and Chief
General Internal Medicine - HMC
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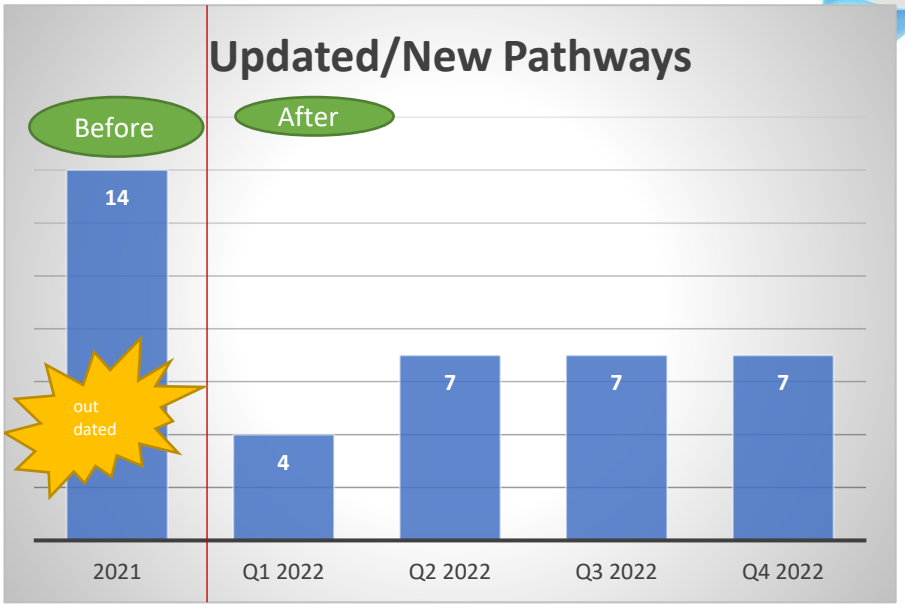
Medicine Department Tel. No. (+974) 4439-2489 P.O. Box 3050 Doha, Qatar

Cont. Results: clinical pathways

- Updating the 14 clinical pathways.
- 11 new clinical pathways were developed, reviewed and will be posted on the HMC website



Conclusion

- Extending the collaboration between the CPs and GIM department beyond the day-to-day practice was an added milestone for patients' safety.
- Based on the MUEs findings interventions were taken
- Clinical pathways development is an improvement initiative towards standardized practice

Next Steps

- Will maintain the practice of performing further MUEs
- Follow-up the compliance with the developed clinical pathways.

Acknowledgement

- Would like to thank the GIM clinical pharmacy team for their efforts in conducting MUEs and clinical pathways

References:

1. Bauters T. The role of the pharmacist in a multidisciplinary team. Hospital Pharmacy Europe. 2014 May 6.
2. Kimura T, Fujita M, Shimizu M, Sumiyoshi K, Bansho S, Yamamoto K, Omura T, Yano I. Effectiveness of pharmacist intervention for deprescribing potentially inappropriate medications: a prospective observational study. Journal of Pharmaceutical Health Care and Sciences. 2022 Dec;8(1):1-0.
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4. Afanasjeva J, Burk M, Cunningham F, Fanikos J, Gabay M, Hayes G, Masters PL, Rodriguez R, Sinnett MJ. ASHP guidelines on medication-use evaluation. American Journal of Health-System Pharmacy. 2021 Jan 15;78(2):168-75

Thank you

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16-19 March, Doha

Implementation of New Discharge Process to Promote Safe Transition of Care at Hamad General Hospital

Asmaa Ezzeldin Mohamed Mohamed
A/Assistant Director –Clinical Pharmacy Services
Hamad General Hospital

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Conflict of Interest

I have no conflict of interest or disclosure in relation to this presentation.

Learning Objectives

At the end of this session, participants will be able to:

1. Outline the causes of possible medication errors upon discharge
2. Identify the new discharge process implemented in Hamad General Hospital
3. Recognize the role of clinical pharmacists to support safe discharges

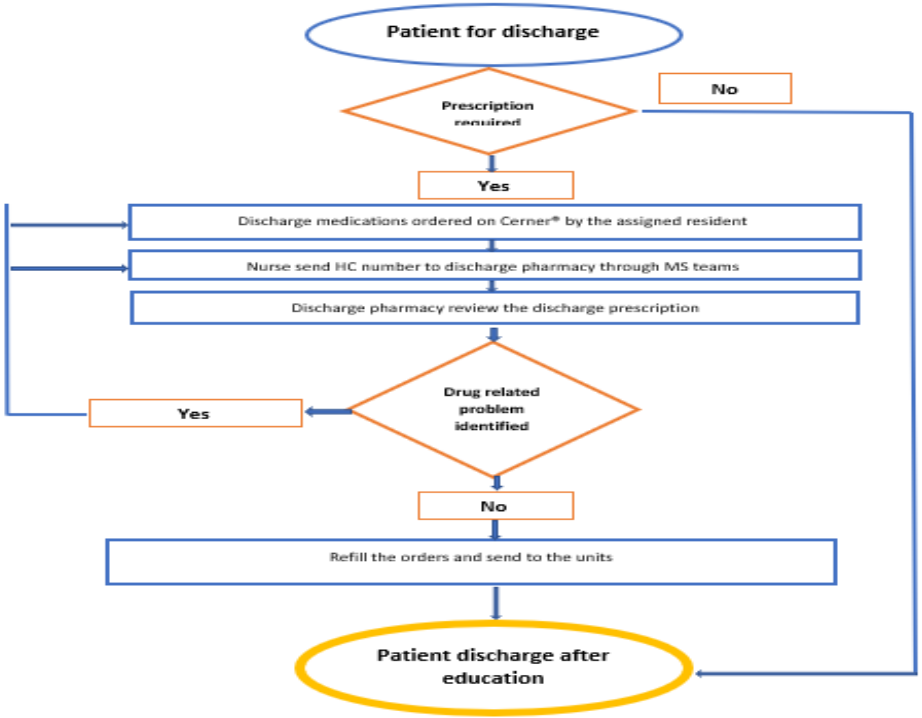
Introduction

- Discharging patients from the hospital is a critical point in the transition of care
- It is estimated that 50% of adult patients are affected by medication errors at discharge and almost 20% experience an adverse drug event post-hospital discharge
- Proper discharge planning and accurate discharge medication reconciliation are important for safe discharge, reducing hospital readmission, and improving patient outcome

Background

- Medical patients discharged from HGH have multiple comorbidities and polypharmacy
- Most discharge prescriptions are written by junior residents
- The teams' clinical pharmacist should review the discharge prescription to ensure its appropriateness before being dispensed and reaching the patient

Old Process

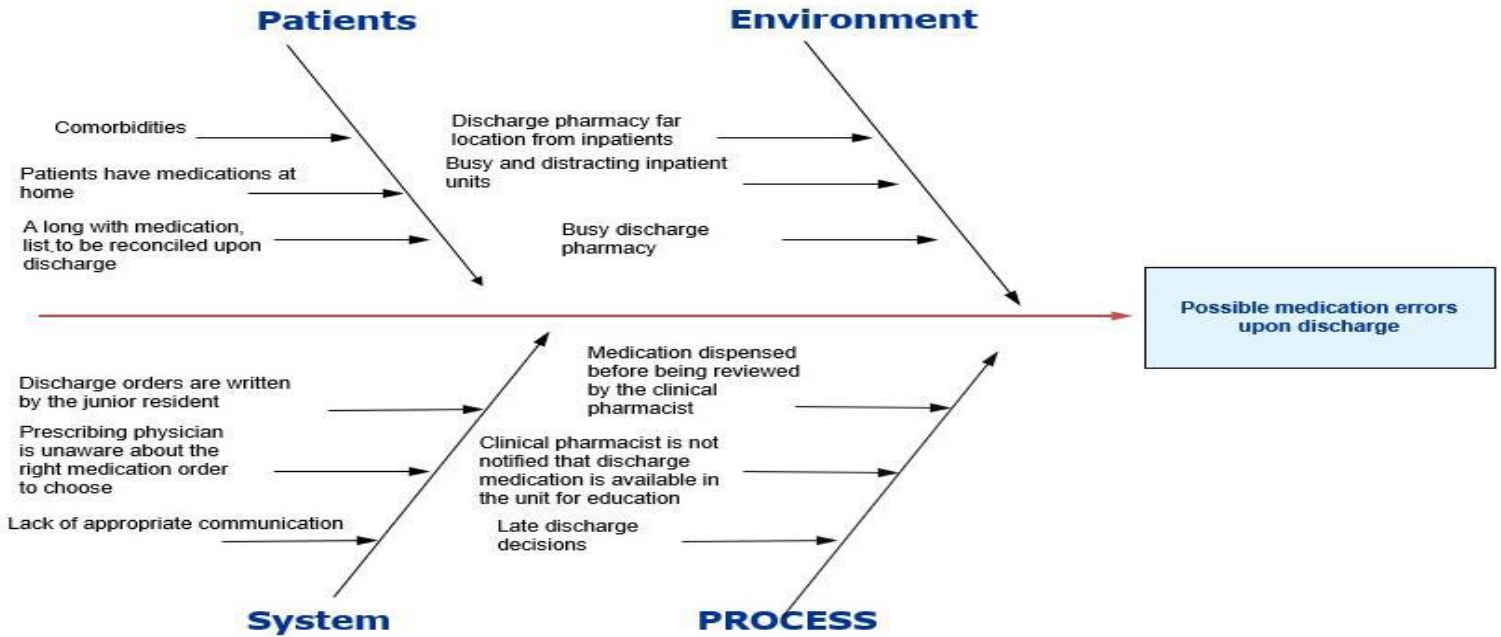

Patient for discharge
Prescription required
No
Yes
Discharge medications ordered on Cerner® by the assigned resident
Nurse send HC number to discharge pharmacy through MS teams
Discharge pharmacy review the discharge prescription
Drug related problem identified
Yes
No
Refill the orders and send to the units
Patient discharge after education

Objectives / Aim

- To establish a lean discharge process and avoid rework loops

- To achieve a contribution of clinical pharmacists in refilling at least 15% of discharge orders for patients admitted in medical units at HGH by November 2022 as an initial step

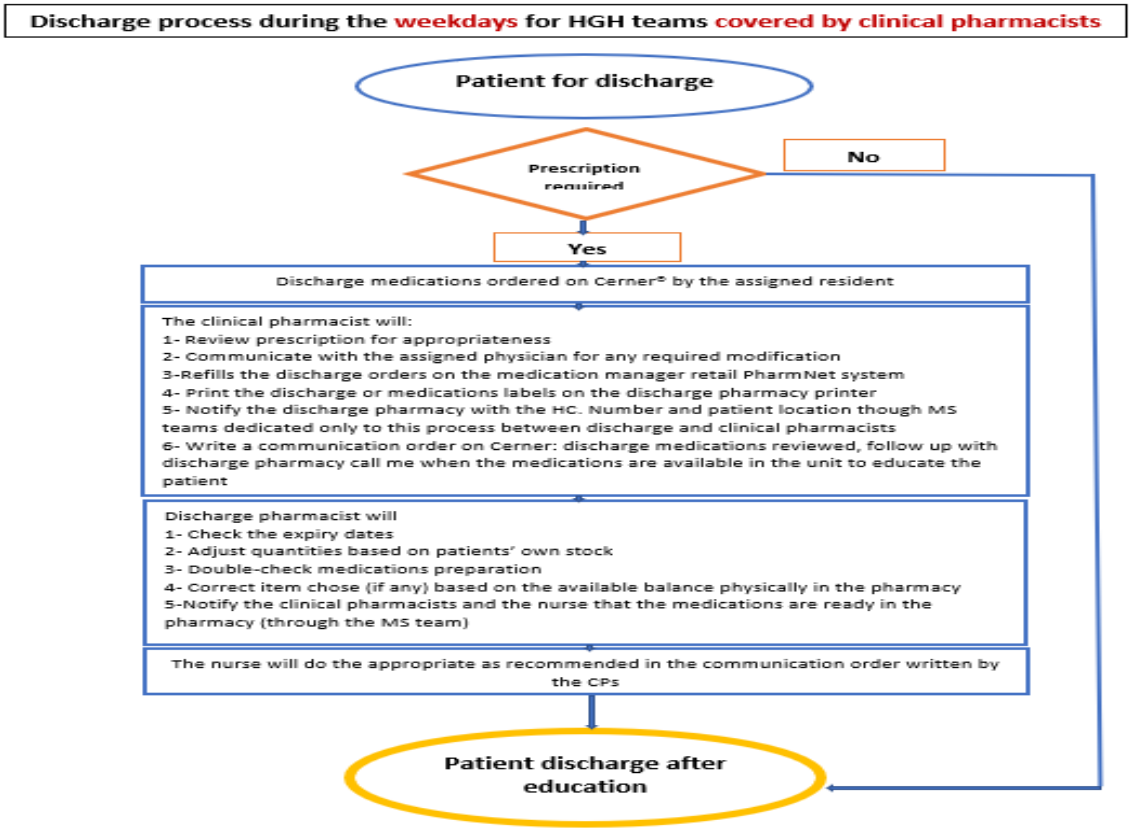
Cause & Effect Diagram



Change Ideas

- Develop a new process
- Refilling of discharge medication orders by the team clinical pharmacist
- Improve the MDT communication through the communication order on Cerner

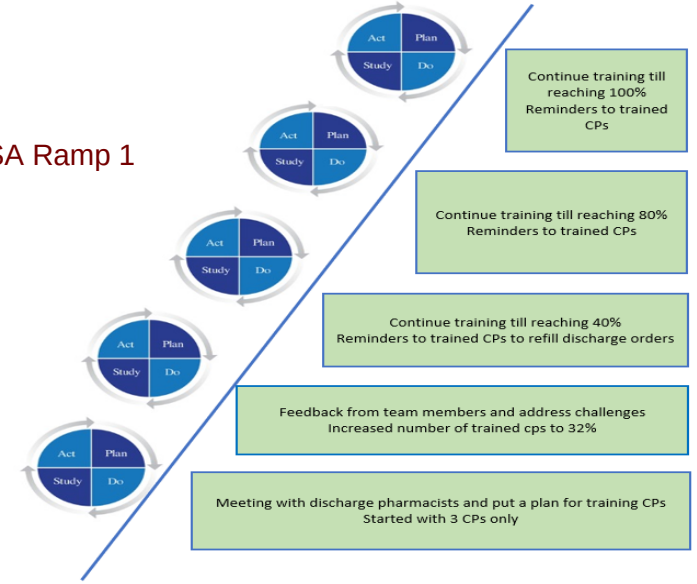
New Discharge Process



PDSA Ramps

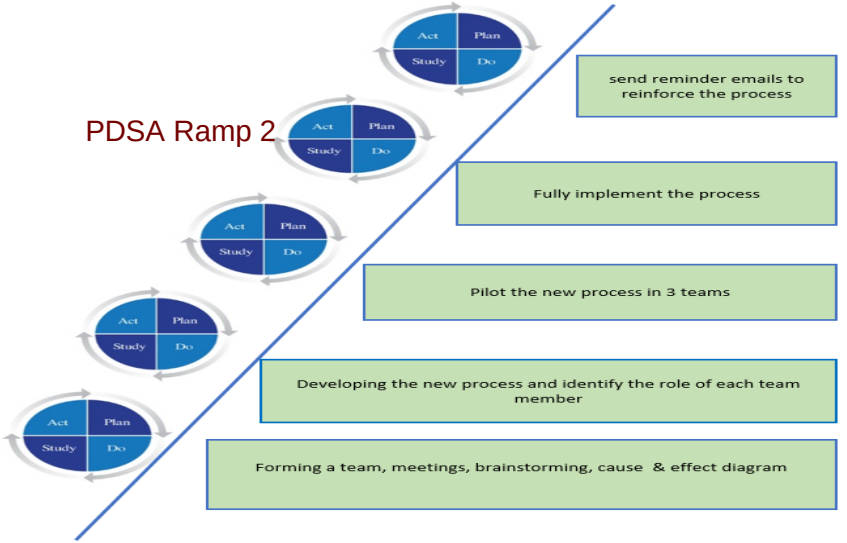
- Multiple PDSA cycles have been implemented

PDSA Ramp 1



Training of CPs

PDSA Ramp 2



Development of a new process

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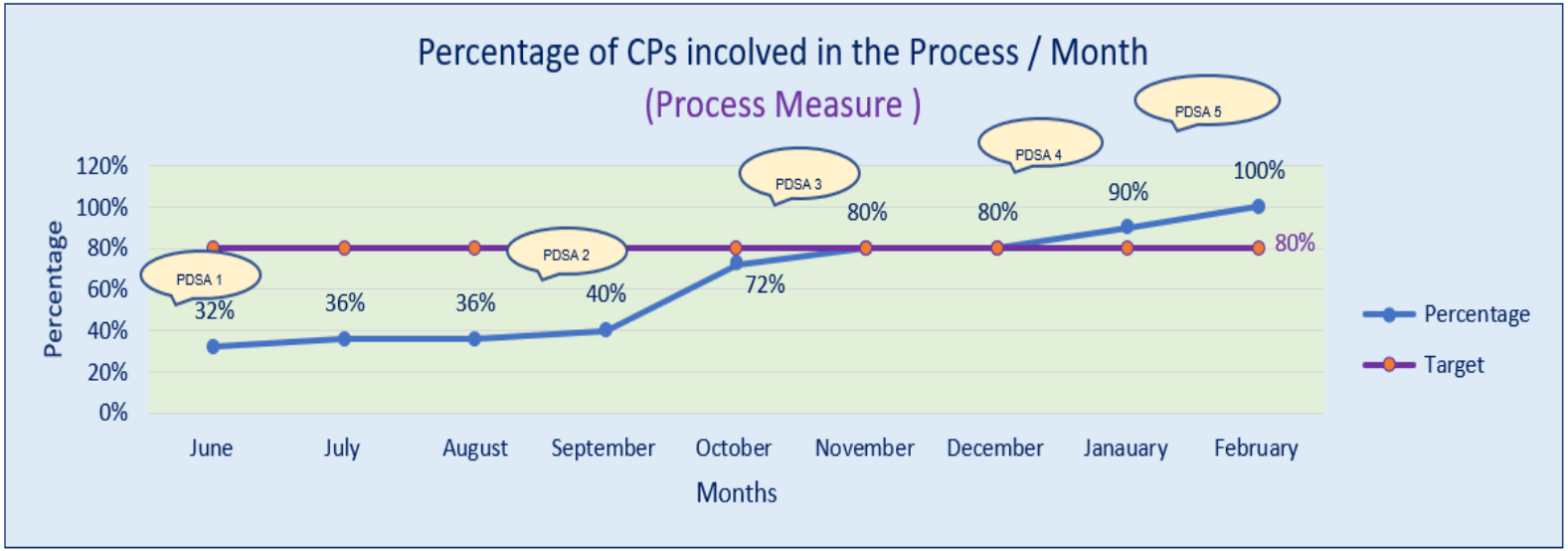
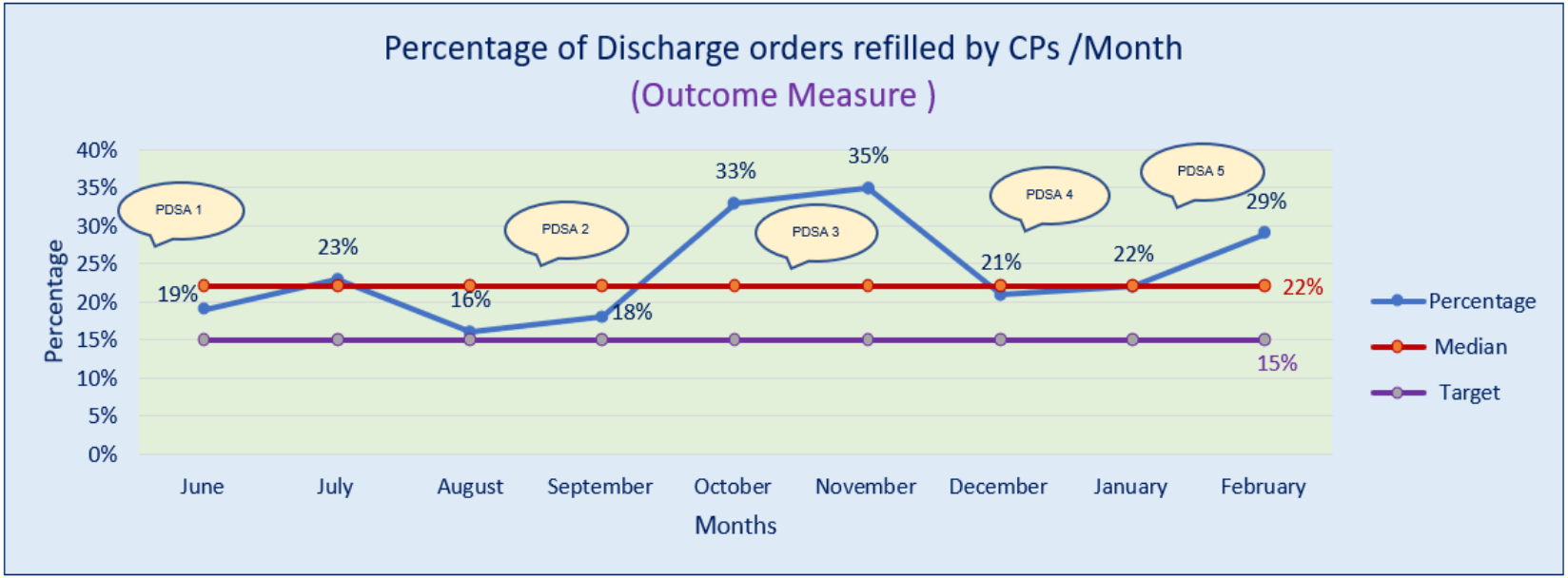
Results

- By Feb 2023,100% of Clinical pharmacists covering medical units were trained and involved in the new discharge process



Results

- HGH Clinical pharmacists contributed to the refilling of discharge orders on monthly basis with a median of 22 %, above the target of 15 %.



Conclusion

- The new discharge process standardized the practice, improved MDT communication , ensured that the clinical pharmacists reviewed discharge orders before the medications reached the patients, decreased the rework loops, and ensured patient safety

Next steps

- The overall goal is to achieve consistency in the process
- Discharge statistics will be collected and analyzed on a monthly basis
- Follow up the compliance with the new process
- Continue using the model of improvement to optimize patients' safety upon discharge

Acknowledgment

HGH Pharmacy Department and Nurses' leadership

HGH Clinical pharmacists, Discharge pharmacists, and Nurses of the medical units who participated in the success of this project

References

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Pellett C. Discharge planning: best practice in transitions of care. British journal of community nursing. 2016 Nov 2;21(11):542-8.

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Thank you

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16-19 March, Doha

Efficiency and Safety of New Dialysate Potassium Management Protocol to Control High Serum Potassium Level in Haemodialysis Population Qatar

Dr Mohamed Amin Elesnawi

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Efficiency and Safety of New Dialysate Potassium Management Protocol to Control High Serum Potassium Level in Haemodialysis Population Qatar

(Shajahan Joseph K, Farrukh Ali Farooqi, Rania Ibrahim, Dr Abdullah Hamad, Dr Mosab Ahmad, Dr Hassan Al-Malki, Dr Tarek Fouda, Dr Mohamed Amin, Mohd. Afsar Sheriff, Alaa Mohd K Fouda, Teha Dham, Wafa Ali, Mohd Dawood, Karima Khalid, Meseda Ahamd, Heba Al-Qahtani, Iman Khater, Sahar Ismail, Kaithackal S Paul, Johnson K, Binoop Jacob, Jobi Joseph, Savio Martin, Fasiur Rahman, Shakeb Ahmad, Blesson Varghese, Haseen Ahmad, Denish Narayan, Mohd Ibrahim, Rajesh Devadiga,)

Presented by : Dr Mohamed Amin Elesnawi

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Conflict of Interest

I have no conflict of interest or disclosure in relation to this presentation.

Learning Objectives

At the end of this session, participants will be able to:

Objective 1:- Identify patients with abnormalities of serum potassium(K+) before and after dialysis session, with potential complications of arrythmia and possible cardiac death.

Objective 2 :- Understand the need to adjust dialysate potassium concentration in order to avoid serious complications.

Objective 3 :- Appreciate the importance of implementing the new changes in the current protocols and guidelines and its positive effect on the quality of life of HD patients.

Background :

- Hamad General Hospital (HGH) is the main provider of hemodialysis(HD) treatment in Hamad Medical Corporation Qatar.
- Approx. 680 Patients getting maintenance hemodialysis treatment 3xweekly of 4 hrs. each session.
- In last December 2021 we observed approx. 56 patients were using Low K+ bath solution (K+ 1.0 mmol/l) due to hyperkalemia (Serum K+ >5.5 mmol/l, as per old protocol) and 16 HD Patients admitted to ED with hyperkalemia and related complications.
- Serum potassium concentrations rise with dietary potassium intake between dialysis sessions and are often at hyperkalemic levels by the next session.
- Abnormalities of potassium(K+) before and after dialysis session, and rapid changes in K+ concentration during the dialysis session have been suggested as a potential cause of arrythmia and cardiac death.

- During dialysis rapid changes in serum potassium level by generating large serum-to-dialysate K+ gradient with a low dialysate K+ bath could result in deviations in membrane potential that can lead to muscle paralysis and fatal arrythmia.
- The rate of correction of serum potassium is crucial and has the potential to influence dialysis safety.
- This will depend upon the serum to dialysate K+ concentration gradient and the aggressiveness of other components of the dialysis prescription including blood flow rate and dialyzer size.
- Controlled studies of different dialysate potassium concentration and their effect on mortality and cardiac arrests have not been done.
- Until these results become available, we propose interim guidelines for the setting of dialysate potassium levels that may better balance risks and benefits.

Program Aim:-

- To describe a multidisciplinary effort to investigate and reduce the occurrence of outpatient serious hyperkaliemia.
- Measure the patient-reported outcome on this activity and quality of life.
- To Reduce the HD Patients admission to ED related to hyperkalemia from 12% to 0% by the end of December 2022. (Figure 3)(1).
- To Reduce the number of HD Patients on Low K+ Dialysate bath in HGH Dialysis Facilities from 56 pts to maximum only 5 pts by the end of December 2022. (Figure 4)(2).

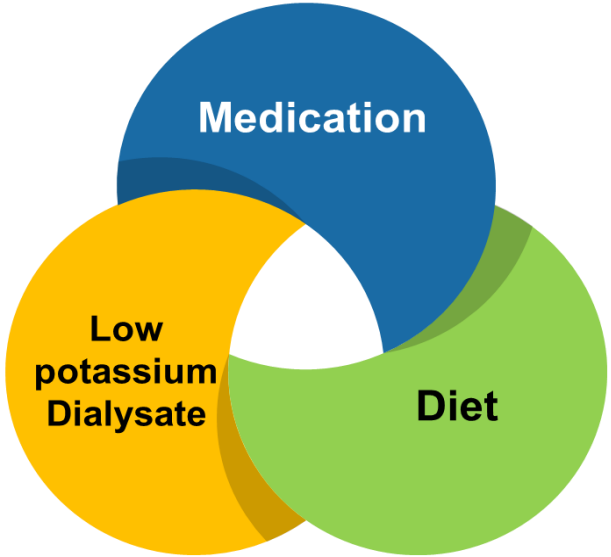
Intervention:-

Multidisciplinary Team Formulated Including (Director-Ambulatory Dialysis Services, Technical Director ,Nursing Director ,Nephrologists ,Dialysis Nurses ,Dialysis Technicians, Dietitian ,Patient educator. Program initiated in February 2022.

- After pilot study on few patients ,the potassium (k+) bath protocol was updated to use 1.0mmol/l of potassium bath during dialysis for potassium level increased from >5.5 mmol/l to >6.0 mmol/l. and new algorithm initiated to manage Low K+ Dialysate solution delivery in HGH dialysis units.
- The causes of hyperkalemia were identified.
- We individualized the care plan to manage hyperkalemia.
- Monitoring serum potassium level of patients on every HD session for those who are using special potassium dialysate solution.
- Data were collected from electronic medical file and analyzed.

Intervention:-

Figure 1: Steps in hyperkalemia management



Low potassium Dialysate

- Rapid changes in electrolyte concentrations during hemodialysis may trigger arrhythmias.
- We develop protocol to Management of potassium dialysate in HD population with close monitoring of serum potassium level

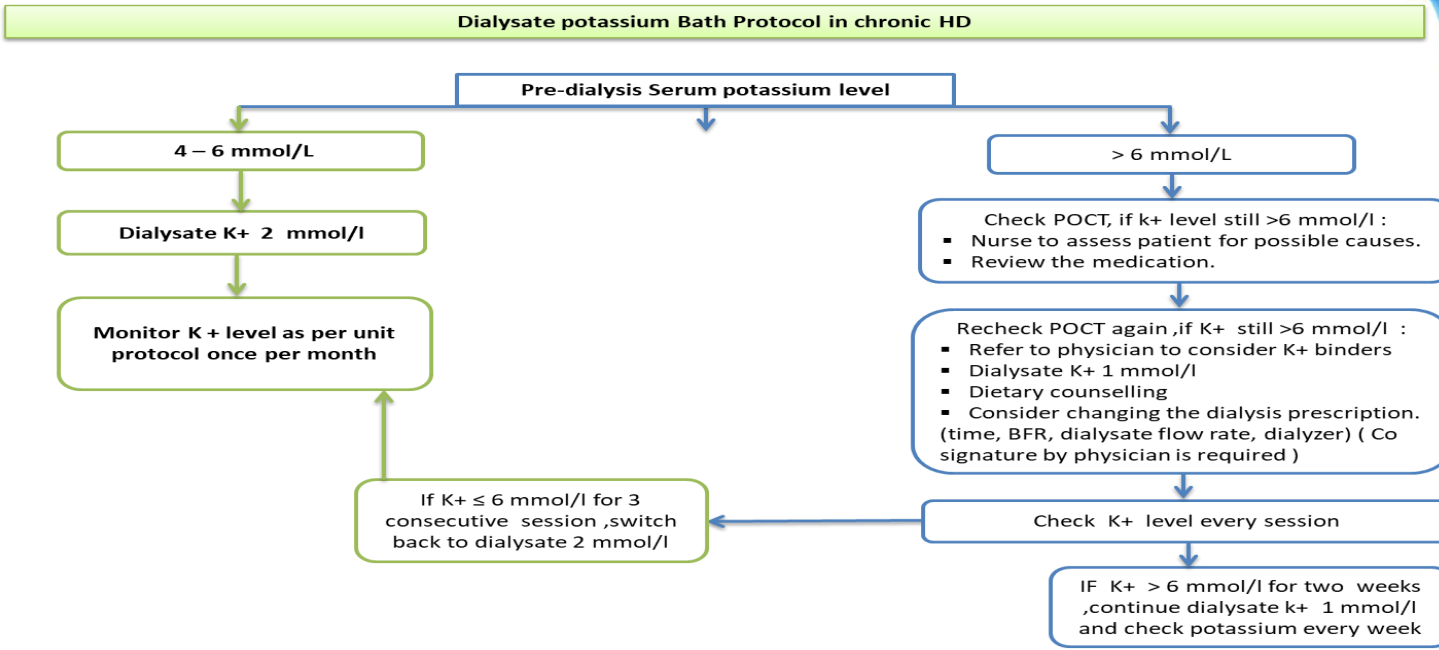
Medication

- Renin-Angiotensin-Aldosterone system Inhibitor (RAASi) can raised the serum potassium level ,consider reducing the dose or frequent or the physician will replace it according to the clinical assessment .
- Consider using of Potassium Binders medication
- Monthly Medication Reconciliation.

Diet

- Stringent potassium intake may be Required
- Low potassium(K+) diet target intake ≤ 2-3 gm/d
- Health education to the patient and family about diet

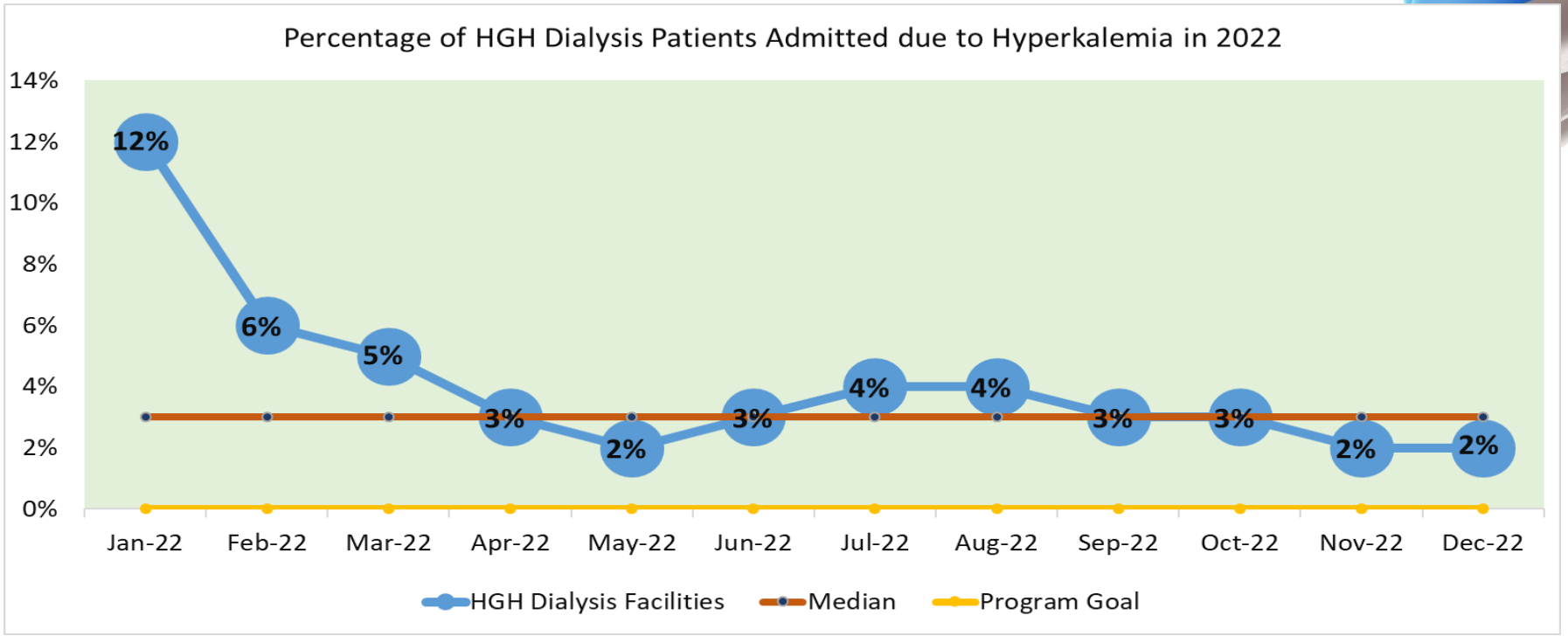
Intervention:- Figure2: Potassium management protocol



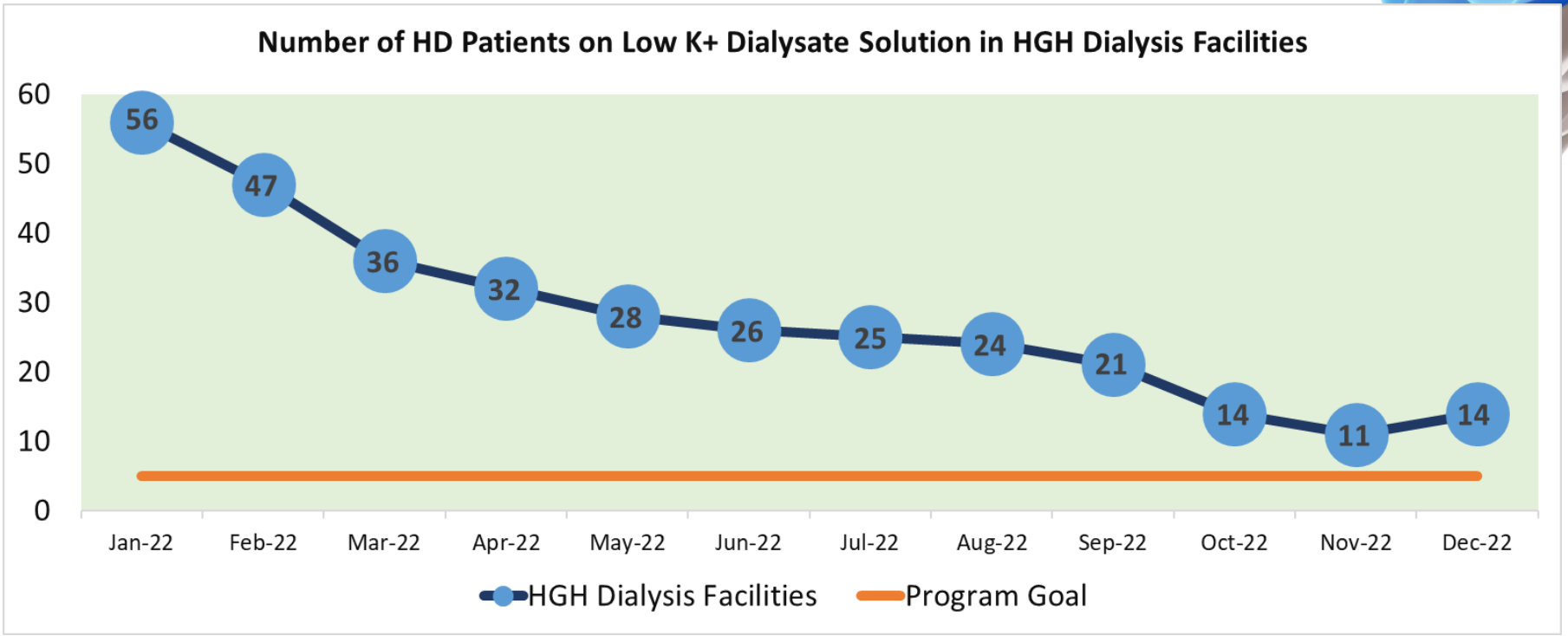
General Rules

- Ideal pre-dialysis plasma k+ should be 4 – 6 mmol/l and default dialysate potassium concentration is 2 mmol/l
- Inform physician immediately if potassium is < 3.5 mmol/l or > 6.5 mmol/l
- If persistent > 6.5 mmol/l despite above measures , refer to Dietary counselling /Patient educator Review

Results :- (Figure 3)



Results :- (Figure 4)



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Outcome :-

1. Remarkable Reduction in Hemodialysis Patients Admission to ED related to Hyperkalemia from 16% to 2% in December 2022 (Figure 3)(3).

2. Number of patients using of Low K+ Dialysate Solution(1.0 mmol/l) significantly dropped from 56 Pts in January 2022 to 14 Pts in December 2022. (Figure 4)(1,2).

Conclusion :-

- After Implementing New K+ bath protocol in HGH Dialysis Facilities, found remarkable results, which have direct impact on quality and safety of Hemodialysis dependent patients.
- Able to reduce ED visits and hospital admission thereby reducing ED burden and financial resources.
- Same Practice will follow to continue high quality patients care and maintain the patient safety.

References :-

- Sica DA, Struthers AD, Cushman WC, Wood M, Banas JS, Epstein M. Importance of potassium in cardiovascular disease. The Journal of Clinical Hypertension. 2002;4(3):198–206.
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Sustainability :- (In-Service Classes and Reorientation to dialysis staff)

Thank you