USING AN OSCE TO ASSESS KNOWLEDGE AND PRACTICE GAPS OF REGISTERED NURSES REGARDING MEDICATION SAFETY

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INTRODUCTION AND BACKGROUND

Unsafe medication practices are the leading causes of avoidable patient harm in the healthcare system, with knowledge and behavioural attitudes of nurses playing a pivotal role in the occurrence and prevention of such incidences (Dirik, Samur, Intepeler & Hewison 2018:9). Administration of medication is an important part of the nurse's role. Responsibility lies with the nurse to ensure that it is done safely and ethically.
During the 2021 / 2022 financial year, the Coast East Region experienced a spate of medication related adverse events with the regional incidence rate peaking in June 2022 at 1.20. This was a cause for concern as the Group goal is 0.87. The conventional methods of re-teaching the procedure using the available training material, creating awareness by in-service training and instituting disciplinary measures proved ineffective. A need was identified to conduct a quality improvement project (QIP) to identify knowledge and practice gaps of registered nurses (RN) towards medication safety, at the eight Life Healthcare hospitals in the Coast East Region, who were experiencing medication related adverse events, in order to develop preventative strategies. Registered nurses (RN) were identified as the priority category of nurses to be evaluated as they were responsible for administration of intravenous medication (IV), which is a high risk procedure, as well as they were responsible for supervising the enrolled nurses (EN) who were also responsible for administering medication, except IV medication.

Keywords: Knowledge; medication errors; medication safety; nurses;

METHODS

This QIP was conducted at the eight Life Healthcare hospitals in the Coast East Region, that were experiencing medication related adverse events.
As the training material available on the Gateway was proving to be ineffective in preventing the medication related adverse events, the programme was reviewed and revised by the nurse managers and clinical training specialists (CTS) before commencing the project. A five station medication Objective Structured Clinical Examination (OSCE) was conducted to assess the knowledge and practice gaps of all RNs who were responsible for medication administration.

The five OSCE stations were:

Station 1: Legal prescriptions

- The RNs were given copies of prescriptions and had to identify the errors in the prescriptions
- They had to discuss what corrections needed to be made

Station 2: Control of schedule 5 and 6 medications

- The RNs were presented with case scenarios and had to discuss the factors, in each scenario, that had caused the errors

Station 3: Principles of medication administration

- Administration of the right medication to the right patient at the right time, at the right strength via the correct route. Scenarios were given on the calculation and identification of gaps about legal prescriptions. Actions taken to correct gaps identified

Station 4: Nursing considerations

- Nursing considerations (e.g. what to check before administering digoxin, administration of hypoglycaemics, administration of analgesia to the elderly, administration of different classes of antihypertensives and diuretics, administration of analgesia)

Station 5: Telephonic prescriptions

- Principles in taking of telephonic prescriptions, transcribing, standing orders and medication brought from home. Scenarios given to identify gaps and to assess the actions they will take to correct the identified gaps

These stations were decided upon as they were the areas that were identified as having the most adverse events as reported by the Quality department at each hospital. 437 RNs participated in the OSCE. Each station was 20 minutes with 2 examiners per station. As each station was completed, the RN would then proceed to the next station, until all five stations were completed. CTS's and unit managers (UM) were the examiners. The answers were marked by the examiners at each station. The OSCE was rolled out over a period of three months. After the OSCE, a remediation programme was done with the unsuccessful candidates within the same month that they had completed the initial OSCE. The remediation programme entailed the CTS going through the Life Healthcare policies and work procedures relevant to medication administration; thereafter the RNs were allowed to practice the same OSCE stations that they had been unsuccessful in. The CTS then gave them feedback on their performance. The RNs were given one remediation session each. The remediation programme was facilitated by the CTS's over a period of a month. After the remediation programme was completed, the candidates were given an opportunity to re-attempt the OSCE. The same stations as the initial OSCE were used.

LIMITATIONS

Availability of staff to attend

- The OSCE was done on-duty
- RNs had to cover shifts in the units; therefore appointments could not be finalised until the UM confirmed that sessional staff were available to cover the shift
- Staff were booking off sick on the scheduled days and had to be reschedules
- Night staff were too tired to attend the sessions in the morning and did not want the nights off to be converted to a study day

Appropriate venue:

- Use of the Training room had to be shared with other departments
- OSCE sessions had to be staggered, which drew out the process

Attitude of RNs

- Majority of RNs did not go through the pre-assessment material that was provided a week in advance

REFERENCES:

1. Irabadi, N, Shawagfeh, S, Haddad, R, Mukattash, T, Abuhammad, S, Al-rabadi, D, Abu Farha, R, Alrabadi, S & Al-Faouri, I. 2021. Medication errors: a focus on nursing practice. Journal of Pharmaceutical Health Services Research, 12(1): 78-86.
2. Dirik, HH, Samur, M, Seren Intepeler, S & Hewison, A. 2019. Nurses' identification and reporting of medication errors. Journal of clinical nursing, 28(5-6) : 931-938.
3. Escrivá Gracia, J, Brage Serrano, R &Fernández Garrido, J. 2019. Medication errors and drug knowledge gaps among critical-care nurses: a mixed multi-method study. BMC health services research, 19(1): 1-9.
4. Fernandez, R, tenHam-Baloyi, W, Mathew, E, Secginli, S, Bahar, Z, Jans, C, Nahcivan, N, Torun, G, Lapkin, S & Green, H. 2023. Predicting behavioural intentions towards medication safety among student and new graduate nurses across four countries. Journal of clinical nursing, 32(5-6): 789-798.
5. Nasr Abd El Aziz, AM, Ahmed, SM & Abolwafa, N.F. 2021. Nurses, Knowledge and Practice Regarding Medication Preparation and Administration Errors Occurrence at Neonatal Intensive Care Units. Minia Scientific Nursing Journal, 10(1): 141-147.
6. Shitu, Z, Aung, MMT, TuanKamauzaman, TH & Ab Rahman, A.F. 2020. Prevalence and characteristics of medication errors at an emergency department of a teaching hospital in Malaysia. BMC health services research, 20(1): 1-7

DATA COLLECTION AND INTERPRETATION

A quantitative survey was sent to all 8 Life Healthcare hospitals who had implemented the medication OSCE.
The clinical training specialist of each hospital was requested to collate the below information:

- The number of registered nurses that participated in the OSCE
- The number of registered nurses that was successful
- The number of registered nurses that went through the remedial programme
- The number of registered nurses that was successful after the reattempt of the OSCE

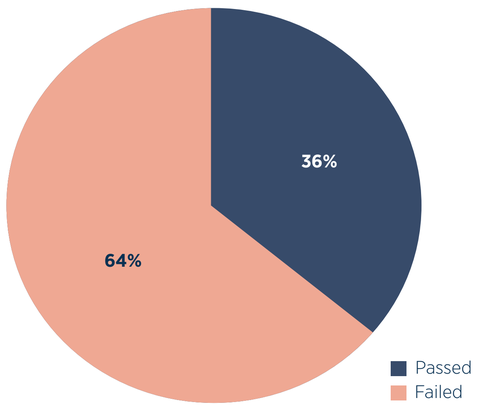
The data was collected and sent to our acting regional education manager who then reviewed the data.

The finding was as follows:

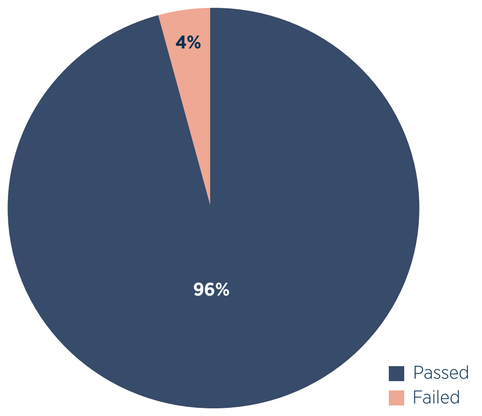
Number of registered nurses	Initial OSCE	Reattempt OSCE
Total registered nurses participated	437	297
Total registered nurses successful	140	286
Total registered nurses unsuccessful	297	11

RESULTS

OSCE Results – Pre-remediation



OSCE Results – Post Remediation



DISCUSSION

This quality improvement project identified that knowledge and practice gaps of registered nurses regarding medication safety did exist. The results showed that despite medication administration being within their scope of practice of the registered nurses and was a daily task that they performed, registered nurses displayed a marked lack of knowledge and demonstrated practice deficits when administering medication. This is supported by a study by El Aziz, Ahmed & Abolwafa 2021: 144) on nurses' knowledge and practice regarding medication preparation and administration that revealed that less than three quarter of the nurses in the study had average knowledge regarding medication preparation and administration. Furthermore, the majority of nurses did not go through the pre-assessment material in preparation for the OSCE, indicating less intention to behave in a manner that promoted medication safety. A study by Fernandez *et.al* (2022:789) corroborates this finding in their study on predicting behavioural intentions towards medication safety where it was found that there was a significant intention to practice medication safety.

The results further revealed a marked improvement in performance in the OSCE and intention to practice medication safety after remediation was done. Remediation allowed the registered nurses to be deliberately aware of the areas that they were lacking in with specific reference to medication administration. Literature reveals that developing effective medication training programmes will enhance knowledge and skills and improve confidence in nurses to practice safe medication management (Fernandez *et.al* 2021:790).

The success of the OSCE was further evidenced by the February 2023 medication incident rate being reported at 0.45 for the Coast East region compared to the average medication incident rate for the FY 2021/2022 which was 0.82.

CONCLUSION

Safe medication practices are a pivotal focus point of the global strategy to improve patient safety. Understanding nurses' knowledge and medication administration practices is important to develop strategies aimed at improving medication safety (Fernandez 2022:796).
The results from the OSCE concluded that the embedded knowledge of the RNs on safe medication administration was below expectation. Reviewing and revising the existing training material to address the specific problems being experienced by the region enabled the nurse managers and the clinical training specialists to identify the knowledge and practice gaps of the RNs. Once the root cause was identified, remediation could be done to improve safe medication administration practices.
Registered nurses showed positive attitudes to practicing safe medication administration as majority of the RNs attended the OSCE after remediation was done and had reviewed the pre-assessment material which was in direct contrast.
The revised medication OSCE is now a standard practice at micro-induction at each of the hospitals in the Coast East region to identify knowledge and practice gaps in nurses that are responsible for medication administration. This allows early identification of problem areas so that remediation can be done with an expected outcome of reduced adverse medication events.
The OSCE has been shared with the agencies to ensure competences of registered nurses working at our Life healthcare facilities in our region.
One of the hospitals in the region have also reviewed the tool and implemented the OSCE for the enrolled nurse.

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