IMPROVED PRESCRIPTION APPROPRIATENESS BY DEVELOPING AND INTEGRATING A MEDICATION DUPLICATION ALERT IN ONCOLOGY CLINICAL PHARMACIST MENU IN CANCER HOSPITAL PAKISTAN

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BACKGROUND

Within the in-patient electronic prescribing system at SKMCH&RC, the chemo-protocol and current-medication modules run separately. In this setting, supportive drugs prescribed in current-medication module may unintentionally duplicate chemo-regimen components if a prescriber misses an existing order and re-enters it in electronic record. Duplicate medication orders are multiple active orders for the same drug or therapeutic class. This increases the risk of duplicate medication error and jeopardize the patient's safety.

OBJECTIVE

We aimed to design an automated Medication Duplication Alert (MDA). This alert designed to review a patient's record for duplicate orders and to notify the pharmacist during prescription review on a clinical pharmacist menu screen.

It's effectiveness will be evaluated by its ability to identify duplicate orders, thereby reducing prescribing errors and improving prescription appropriateness.

METHODS

A quantitative retrospective pre & post intervention study was conducted. Data of duplicating drugs was retrieved from hospital information system (HIS) from October 2020 to March 2021 (MDA pre-implementation) and from June 2021 to November 2021 (MDA post-implementation). Information related to duplicate doses administered, time taken by pharmacist to intervene duplicating drug, and number of pharmacist's interventions during both phases was recorded. Statistical package for the social sciences (SPSS) V. 27.0 was utilized for statistical data processing.

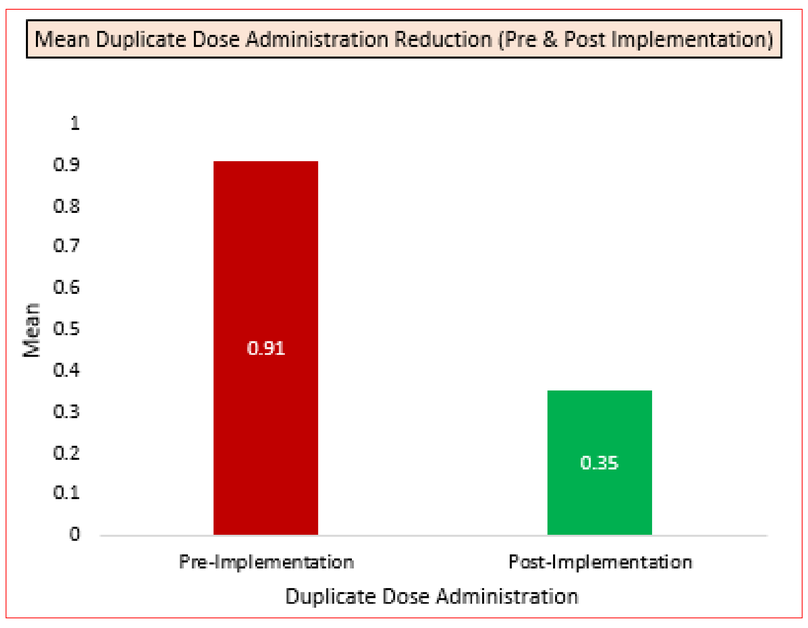


TABLE 2. INTERVENTIONS ON DUPLICATION ORDERS

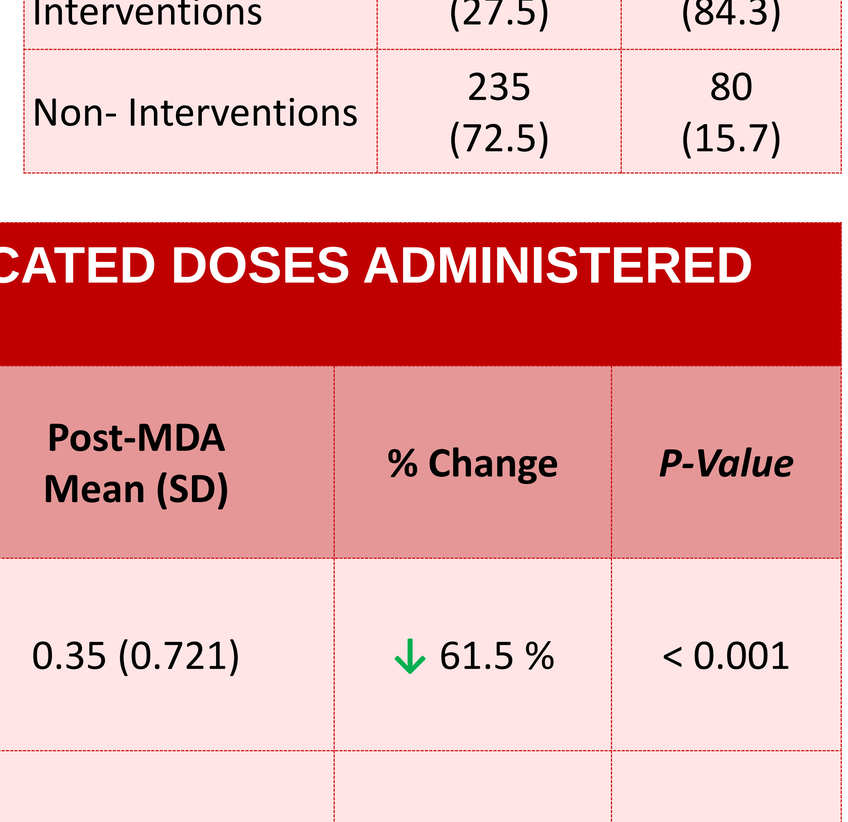
	Pre-MDA n (%)	Post-MDA n (%)
Duplicate Orders	324	509
Pharmacist Interventions	89 (27.5)	429 (84.3)
Non- Interventions	235 (72.5)	80 (15.7)

TABLE 1. MDA IMPACT ON DUPLICATED DOSES ADMINISTERED AND TIME TO INTERVENTION

	Pre-MDA Mean (SD)	Post-MDA Mean (SD)	% Change	*P-Value*
Duplicate Doses Administered	0.91 (2.021)	0.35 (0.721)	↓ 61.5 %	< 0.001
Time To Intervention (Minutes)	31.40 (51.62)	5.70 (11.20)	↓ 81.9 %	< 0.001

INTERVENTION

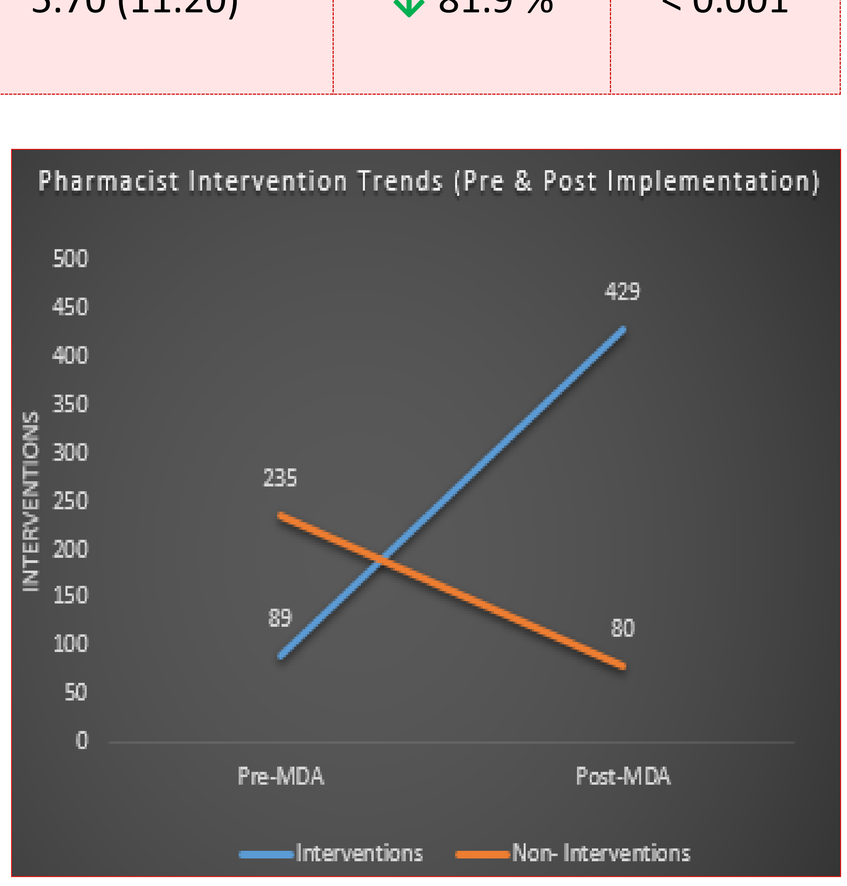
A medication duplication alert was designed and implemented in HIS as part of clinical decision support system (CDSS).



RESULTS

324 duplicating orders from pre and 509 from post group were identified for 23 drugs. After MDA,

- Duplicate dose administration reduced to 61.53%, (mean 0.91 in pre, to 0.35 in post-group (p-value < 0.001).
- Time to intervention by pharmacist reduced to 81.85%, (mean 31.40 minutes in pre, to 5.70 minutes in post-group, (p-value < 0.001).
- Pharmacist interventions increased, from 27.5% to 84.3%, while non-interventions dropped from 72.5% to 15.7% (p-value < 0.001), in pre & post phases, respectively.



CONCLUSION

Implementing the MDA into the clinical pharmacist menu within the oncology module significantly improved chemotherapy prescription appropriateness, reduced duplicate dose administration, and intervention time, and enhanced patient safety through timely pharmacists' interventions.