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A RISK ANALYSIS METHOD TO EVALUATE THE IMPACT OF A CHEMOTHERAPY COMPOUNDING WORKFLOW MANAGEMENT SYSTEM ON CANCER PATIENTS' SAFETY

Marzal-Alfaro MB[1], Rodriguez-Gonzalez CG[1], Escudero-Vilaplana V[1], Revuelta-Herrero JL[1], García Martín E[1], Ibáñez-Garcia S[1], González-Haba E[1], Iglesias-Peinado I[2], Herranz A[1], Sanjurjo Saez M[1]

1. Servicio de Farmacia. Hospital General Universitario Gregorio Marañón. Instituto de Investigación Sanitaria Gregorio Marañón (IiSGM). Madrid, España
2. Facultad de Farmacia. Universidad Complutense de Madrid. Madrid, España

OBJECTIVES

Background: The implementation of technology for chemotherapy compounding is recommended by several organizations to improve patient safety. However, a careful evaluation of their benefits and risks is needed.

PURPOSE: To evaluate the safety before and after the implementation of an imaged-based volumetric compounding workflow software system (PhocusRx®), and stratification of residual risks to drive future developments.

METHODS

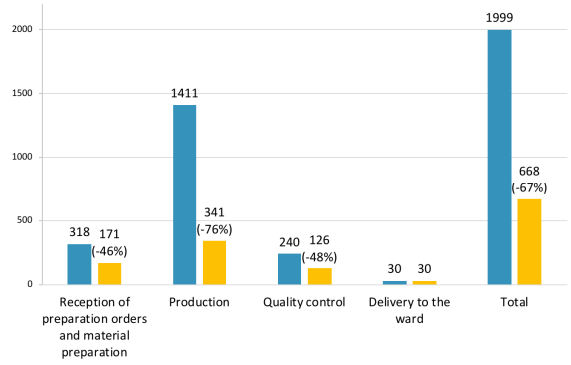
Setting: Chemotherapy compounding pharmacy unit of a 1300-bed tertiary teaching hospital provided with a Computerized Prescription Order Entry program, online pharmacy validation and online printing of compounding order sheets. In the before phase, quality control was made by a pharmacy technician who verified starting products, number of vials used, aspect of the final product and label accuracy.

Design: Comparative risk analysis of the chemotherapy compounding process before and after the implementation of **PhocusRx®**, according to the Failure Modes, Effects and Criticality Analysis method.

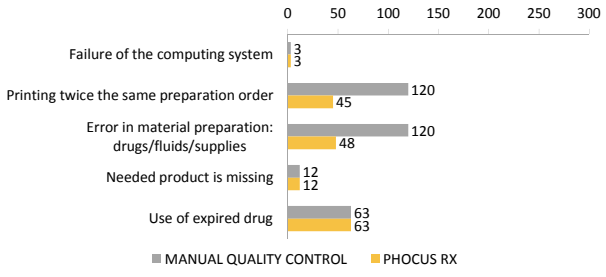
Measurements: The failure modes were defined and their critically index (CI) calculated on the basis of the likelihood of *occurrence* (O), *detection* probability (D) and potential *severity* (S) for patients **(CI = O × D × S)**. CI of the before and after phases were compared, and new measures were proposed.

RESULTS

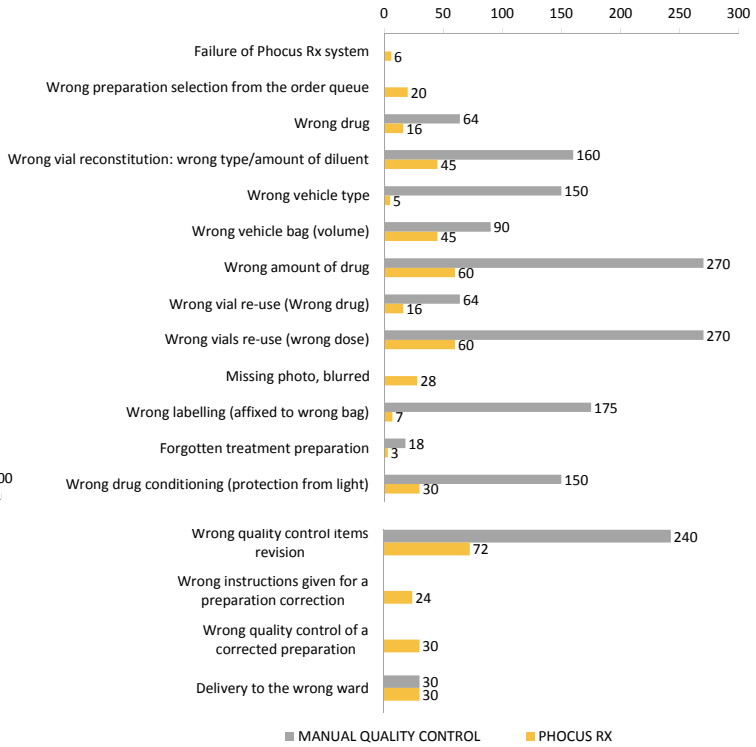
Graph 1. Total criticality indices before and after Phocus Rx implementation



Graph 2. Reception of compounding orders and material preparation: failure modes and criticality indices



Graph 3. Antineoplastic drug compounding and quality control of antineoplastic drugs: failure modes and criticality indices



High-priority recommendations defined were: improving barcode identification of the starting products vials and process improvements in the image-based quality control.

CONCLUSIONS

PhocusRx® implementation has increased the safety of the compounding process in the pharmacy department. FMECA is a useful method for evaluating the impact of compounding technology implementation and identifying further improvement strategies.

belen.marzal@salud.madrid.org

@farma_gregorio