

10.53106/199457952022031602008

Using Multiple Instructional Materials to Improve the Defect Inspection of Total Parenteral Nutrition Products

Wan-Chu Yu¹, Hsin-Chu Shih¹, Wen-Chin Hsu¹, Shu-Neng Wu¹, Jia-Hong Wang¹,
Chen-Chun Kuo¹, Yu-Sheng Hsu^{1,2*}

¹Department of Pharmacy, Kaohsiung Medical University Hospital, Kaohsiung Medical University, ²School of Pharmacy, College of Pharmacy, Kaohsiung Medical University

*Corresponding Author: Yu-Sheng Hsu

Email: edu71097109@gmail.com

Abstract

Objective: To improve the accuracy of operating the fully automated total parenteral nutrition (TPN) compounding system (Exacta-Mix 2400, EM2400) by using multiple instructional materials, with the anticipated outcomes of reducing the defect rate of TPN products and ensuring healthcare quality and patient safety.

Methods: Applying Plan–Do–Check–Act (i.e., PDCA) quality assurance procedure to reduce the defect rate of TPN products. Using the 5W2H method to analyze the situation and identify the main reason for the high inspection defect rate of TPN products. Countermeasures can then be formulated with the goal of improving the average defect rate of TPN products by 50%.

Results: After consulting multiple instructional materials, the average defect rate of TPN products was decreased from 1.25% to 0.32%, which was greater than the initial target of 0.625%. The target achievement rate was 148.8%, and the progress rate was 74%.

Conclusion: Although EM2400 can support quality control in the TPN process, manual operation is still required for setting-up and withdrawing active pharmaceutical ingredients. Negligence reduction and the maintenance of TPN quality are the next critical steps to ensure healthcare quality.

Keywords: quality control, EM2400, multiple instructional materials, e-book

運用多元化教育訓練教材改善TPN的檢驗不良率

尤琬筑¹、施心筑¹、許文菁¹、吳書能¹、王嘉宏¹、郭震群¹、許郁笙^{1,2*}

¹高雄醫學大學附設中和紀念醫院藥學部、²高雄醫學大學藥學系

*通訊作者：許郁笙

電子信箱：edu71097109@gmail.com

所屬單位：高雄醫學大學附設中和紀念醫院藥學部

聯絡地址：高雄市三民區自由一路100號

摘要

目的：藉由多元化教育訓練教材提升全自動全靜脈營養液(Total Parenteral Nutrition, TPN)調配機(Exact-Mix 2400, 簡稱EM2400)操作的正確性，進而改善TPN的檢驗不良率，確保醫療品質及達到病人安全之目標。

方法：運用品管手法PDCA概念改善TPN的檢驗不良率，使用5W2H手法進行現況分析，找出「TPN檢驗不良率高」之主要因，並擬定對策、設定初期目標為改善50%之TPN成品檢驗不良率平均數。

結果：使用多元化教材進行教學後，TPN成品檢驗不良率平均數由1.25%減少至0.32%，優於初期設定之目標0.625%，目標達成率148.8%、進步率74%。

結論：雖然EM2400可以協助TPN製程的品管，但裝機與原料藥的抽取仍需人力協助，如何減少人為疏失以維持TPN的品質穩定，將是確保醫療品質的關鍵步驟。

關鍵詞：品管、EM2400、多元化教材、多媒體電子書