



This study aimed to identify design deficiencies and evaluate the usability and performance of four infusion pump models and thus inform decisions about infusion pump selection” Liu et al (2019).

Abstract:

BACKGROUND: Poorly designed infusion pumps can lead to user errors and adverse incidents. Therefore, assessments of their usability and performance that can inform managerial decisions about the selection of appropriate medical devices are essential.

OBJECTIVE: This study aimed to identify design deficiencies and evaluate the usability and performance of four infusion pump models and thus inform decisions about infusion pump selection.

METHODS: Four evaluators evaluated the interface designs of the pumps according to a series of design principles in a heuristic evaluation in order to identify pump design deficiencies. Additionally, 60 registered nurses participated in simulated use testing to perform a series of tasks using the pumps in order to examine the pump performances. Outcome measures included task completion time, frequency of deviations, frequency of requests for assistance, and nurses’ perceptions.

RESULTS: Design issues identified included system status visibility, information access, and error prevention. The results of simulated use testing favored some pumps over others,

depending on which outcome measures were considered.

CONCLUSIONS: Heuristic evaluations and simulated use testing can provide information about the basic usability of medical devices and related operational issues. However, practitioners should select appropriate evaluation principles, testing tasks, and outcome measures based on the tested medical devices and contexts.

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Reference:

Liu, K., Chan, F.Y., Or, C.K., Sun, D.T., Lai, W.S. and So, H.Y. (2019) Heuristic evaluation and simulated use testing of infusion pumps to inform pump selection. *International Journal of Medical Informatics*. July 24th doi: 10.1016/j.ijmedinf.2019.07.011. .

