

# Knowledge and Attitude on Cytotoxic Drugs Handling Among Nurses: Impact of Pharmacists' Educational Program (KACYDHAN-IPEP Study)

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## ABSTRACT

**Introduction:** The level of knowledge and attitude of nurses towards patient safety has a great impact on providing safe patient care. Medication errors due to improper handling of cytotoxic drugs were also reported in Hospital Sultanah Nur Zahirah (HSNZ), Malaysia in the recent years. This study was proposed to investigate the impact of educational program (PEP) of pharmacists on knowledge and attitude of nurses handling cytotoxic drugs. **Methods:** This quasi-experimental study involved nurses who handle cytotoxic drugs in HSNZ. They were selected through non-randomized universal sampling and required to answer a validated self-administered questionnaire for knowledge and attitude assessment. PEP was introduced by implementing continuous nursing education session which focussed on the handling of cytotoxic drugs. Knowledge and attitude were assessed at pre and 3 months post PEP. Data was analysed using descriptive and non-parametric tests with  $p < 0.05$  was considered statistically significant. **Results:** In all 94 nurses were enrolled; females= 97.9%, median age of 36.0 (IQR 7.3) years old, median duration involvement with cytotoxic drugs handling of 2.0 (IQR 5.3) years. After PEP, median knowledge score of nurses was significantly increased from 55.0 (IQR 18.1) to 61.3 (IQR 15.6) ( $p < 0.001$ ). In term of attitude, less numbers of nurses were able to tolerate a certain level of improper practice among their peers (reduced from 96.8% to 86.2%,  $p < 0.05$ ). **Conclusion:** This study suggests that the PEP has positive impacts on knowledge and attitude of nurses in handling cytotoxic drugs. PEP should be carried out regularly in hospitals as part of initiatives towards reducing medication errors among nurses.

# Pharmacy Value-Added Services: A Cross-sectional Study in Miri Hospital

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## ABSTRACT

**Introduction:** Pharmacy value-added services (PVAS) has been implemented in Malaysian public hospitals, facilitating the balance medications collection. Past studies examined the satisfaction towards PVAS and its impact on the patient waiting time. This study aimed to explore the patient's awareness of PVAS, adoption of PVAS, satisfaction towards PVAS, and willingness to adopt PVAS. **Methods:** We conducted a cross-sectional study on Miri Hospital (MH) (Sarawak, Malaysia) patients by using convenience sampling. We developed and validated a questionnaire in the Malay language to gather information on respondent's demographic data, awareness of PVAS, adoption of PVAS, satisfaction towards PVAS, and willingness to adopt PVAS. **Results:** A total of 398 respondents participated. Most respondents (70.1%) were aware that PVAS offered in MH. However, only a third had experience using PVAS. The most commonly used PVAS was the Appointment Card Dispensing System (49.6%), while minor usage was Local Partial Medication Supply Service (2.4%). Drive-Through Pharmacy had the most incredible satisfaction score, 4.40 (SD=0.70), whereas Call-and-Collect Service was the least satisfied, 3.88 (SD=0.91). The majority of the respondents (86.2%), precisely 95.8% of the experienced PVAS user and 90.1% of the inexperienced group, were willing to adopt PVAS. **Conclusion:** Many respondents were aware of PVAS. However, the adoption could be further improved. Furthermore, many were willing to adopt PVAS. The Drive-thru Pharmacy had the most significant awareness and satisfaction, yet low usage probably due to the lack of promotion. Adoption of PVAS is possible if we inculcate the intention to adopt.