

# Interventions of a clinical pharmacist in an intensive care unit

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## Background and Importance

Patients in an intensive care unit (ICU) are in critical condition and often receive complex pharmacotherapy that needs to be adjusted frequently. It has been shown that multidisciplinary approach, including pharmacists in the ICU team, improves pharmacologic treatment of patients and helps to provide more individualised therapy (1).

## Aim and Objectives

The aim of this study was to identify the most common pharmaceutical care issues (PCI) in the ICU, to assess the acceptance rate of interventions by physicians and nurses made by clinical pharmacist (CP), and to evaluate the time spent on the interventions.

## Methods

This study was a prospective interventional study conducted in a 10-bed ICU in an acute care hospital. During 2019, CP visited the ICU 1-2 times a week and performed a chart review. Recommendations were verbally communicated to the nurses and physicians and interventions documented using modified Pharmaceutical Care Network Europe classification of PCI (2). Time dedicated to the interventions was recorded based on the time spent on the visit in the ICU.

## Results

During the study period CP visited the ICU 65 times and identified 232 PCI. On average, during each visit, 5 (N=315) patient's charts were reviewed and 1.6 (N=147) interventions per patients were made.

Figure 1. Time spent on the interventions (N=65)

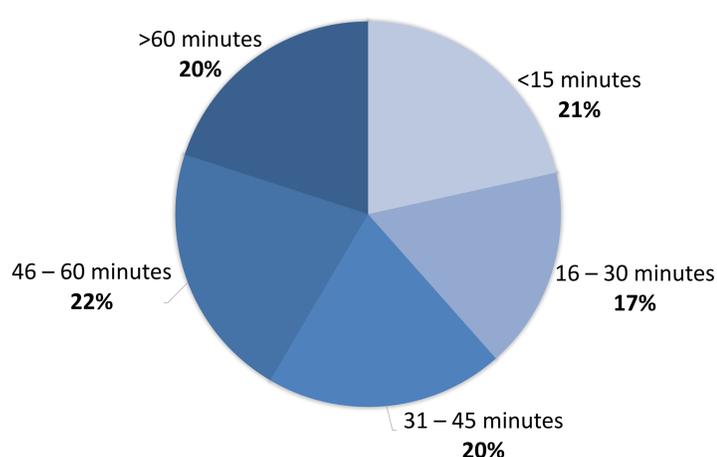


Figure 2. Notification rate of intervention proposals (N=232)

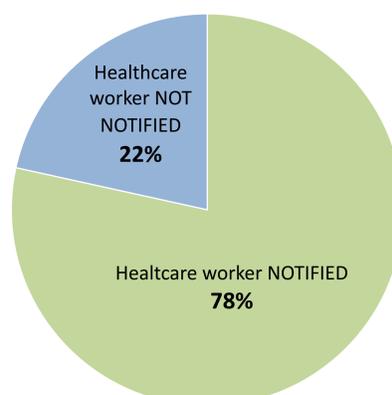


Table 1. Pharmaceutical care issues (N=232)

| Pharmaceutical care issue                                       | Value, n (%) |
|---|--------------|
| No or incomplete drug treatment in spite of existing indication | 25 (11%)     |
| No indication for treatment                                     | 2 (1%)       |
| Inappropriate drug  | 28 (12%)     |
| Subtherapeutic dose   | 33 (14%)     |
| Supratherapeutic dose   | 19 (8%)      |
| Risk of adverse drug reactions                                  | 18 (8%)      |
| Risk of interaction   | 20 (9%)      |
| Wrong time/regimen  | 13 (6%)      |
| Inappropriate dosage form                                       | 27 (12%)     |
| Monitoring required   | 22 (9%)      |
| Compatibility   | 12 (5%)      |
| Inappropriate documentation                                     | 13 (5%)      |

Table 2. Acceptance of the intervention proposals (N=232)

| Intervention proposal                        | Value, n (%) |
|--|--------------|
| Intervention accepted and fully implemented  | 137 (59%)    |
| Intervention accepted, partially implemented | 11 (5%)      |
| Intervention not accepted: not feasible      | 9 (4%)       |
| Intervention proposed, acceptance unknown    | 26 (11%)     |
| Intervention not proposed                    | 44 (19%)     |
| Intervention not accepted: unknown reason    | 5 (2%)       |

## Conclusion and Relevance

This study shows that there is a need for a CP in the ICU. Relatively high rate of un-proposed interventions (19%) could be due to lack of time and the nature of the workflow in the ICU. More regular visits and better collaboration with other healthcare professionals could help improve patient outcomes.

## References

1. Cviki M and Sinkovič A. Interventions of a clinical pharmacist in a medical intensive care unit – A retrospective analysis. *Bosn J Basic Med Sci.* 2020;20(4):495-501.
2. Pharmaceutical Care Network Europe Association (PCNE). The PCNE Classification V9.1. 2020.