# APPLICATION OF THE ALEXANDRIA UNIVERSITY DAILY INTENSIVE CARE UNIT CHECKLIST AND ITS EFFECT ON PATIENTS' OUTCOMES

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## Introduction

Checklists have been widely used in aviation and healthcare industries as a measure of quality assurance and enhancing uniformity in standard of care as prompting in checklists reduces human error. They have been shown to greatly improve safety as it moves away from the reliance of human memory for standard procedures. The ICU is a fast-paced environment that inherently poses high risks to patients. ICU patients are particularly vulnerable due to the need for multiple invasive procedures, and ICU care itself can lead to complications, potentially prolonging ICU stay and increasing morbidity and mortality. For this reason, ICU bundles of care were developed to minimise ICU complications and enhance patient outcomes. The Alexandria University ICU checklist was designed around ICU bundles of care and evidence-based practices that have been proven to improve the quality of ICU care.

## Aim of the Work

This study aimed to implement a checklist in the daily rounds within the intensive care unit and assess the impact of the checklist use on patient outcomes. The checklist was used as a quality improvement tool, and a study was done to determine its impact to patient care within the ICU.

## Patients and Methods

This study included all patients admitted to UNIT 3 ICU, Alexandria Main University Hospital between the period of January 2023 up to December 2023 who were admitted for a period of more than 48hrs. A total of 734 patients were included in the study. This was an observational study that was conducted in two.

phases**: 1**.Retrospective study Patient outcomes in UNIT 3 ICU at Alexandria Main University hospital were obtained for a period of six months before implementation of the checklist, from January 2023 to June 2023. 307 patients were included in the retrospective phase. 2.Prospective study After obtaining informed consent, the quality improvement checklist was applied during daily rounds in UNIT 3 ICU for six months from July 2023 to December 2023. The resident doctor on duty was responsible for filling out the checklist. 347 patients were included in the prospective phase.

## Results

There was a statistically significant reduction in the duration of ICU stay by 24%. The study also showed a statistically significant reduction in duration of mechanical ventilation and ICU mortality as well as the rate of VAP and CRBSI.

**Table 1:** Comparison between the two studied groups regarding the duration of ICU stay.

| | Group I "Retrospective group" "n=307" | Group II "Prospective group" "n=347" | t-Test P value |
|---|---|---|---|
| **Duration of ICU stay (days)** | | | |
| **Range** | 3-47 | 3-34 | 4.01 |
| **Mean** | 9.28 | 7.01 | 0.011* |
| **S.D.** | 7.61 | 5.98 | |

t=student test
P was significant if <0.05
* Significant at level 0.05

**Table 2:** Comparison between the two studied groups regarding the duration of mechanical ventilation.

| | Group I "Retrospective group" "n=139" | | Group II "Prospective group" "n=231" | | t-Test P value |
|---|---|---|---|---|---|
| | No. | % | No. | % | |
| **Duration Of ventilation (days)** | | | | | T=2.65 |
| **Range** | 3-16 | | 2-11 | | 0.031* |
| **Mean** | 8.02 | | 6.13 | | |
| **S.D.** | 3.11 | | 2.98 | | |

t=student test
P was significant if <0.05
* Significant at level 0.05

## Conclusion

The implementation of an ICU checklist, centred around ICU bundles, is an effective tool for reducing ICU complications. It also improves the quality of care by standardizing procedures and minimizing omissions in patient care. The checklist serves as a prompt for better compliance with evidence-based practices, which in turn leads to improved patient outcomes. From our study we can conclude that the use of the ICU checklist was associated with reduced ICU mortality and shorter ICU stay among patients. It also led to a decrease in the duration of ventilation hence increase ventilator-free days. The ICU checklist lowered the incidence of DVT and bedsores among the study population as well as led to a reduction in the incidence of VAP, CRBSI and Catheter associated UTI.