

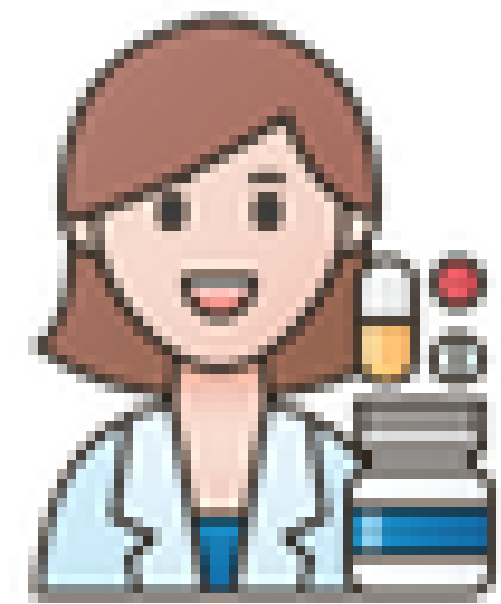
# "SMART COUNTING: THE ROLE OF ARTIFICIAL INTELLIGENCE IN CONTROLLED MEDICATION MANAGEMENT "

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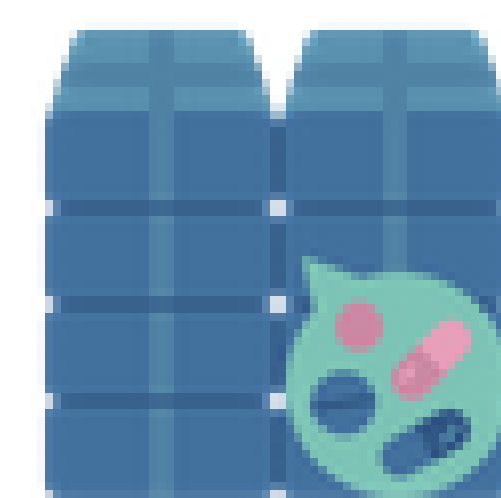
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## Background and importance

- Controlled medications is a critical responsibility of hospital pharmacists (HP).
- Traditional manual counting process → human error and time-consuming.



Artificial intelligence (AI) can reduce the need for human supervision, optimizing the management of these high-risk products.

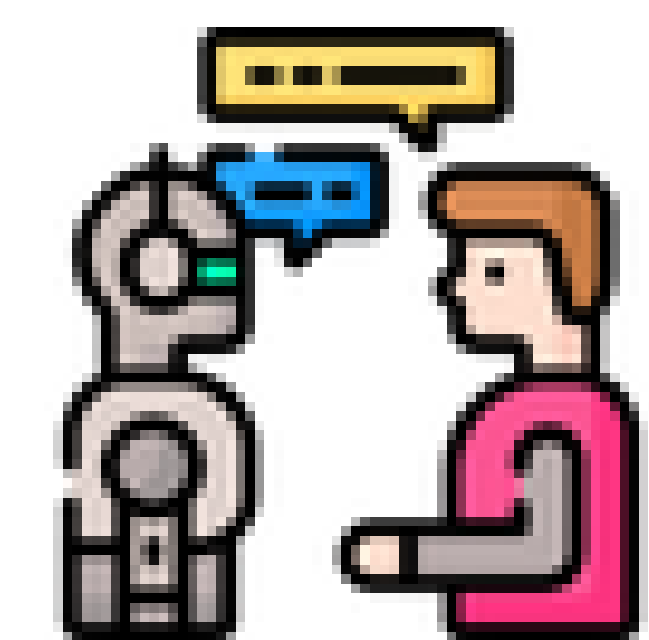


## Aim and Objectives

- Assess the ability of an AI model in counting narcotics and controlled medications, comparing its performance to the manual counting conducted by a HP.

## Material and Methods

- 39 narcotic + 7 controlled medications.
- Inclusion criterion: +5 packages per specialty and some pharmaceutical forms.
- Procedure:
  - 1) A manual count of each medication was performed.
  - 2) An AI application was trained using images of complete packages and loose units for recognition.
  - 3) Images of both complete and loose packages were captured for each medication, and the AI performed the count.
  - 4) The AI's results were compared with the manual count. If they did not match, the process was repeated up to three times before considering the AI count as incorrect.



## Results

- 36/46 medications were included: 10 were excluded due to having fewer than 5 packages or a different pharmaceutical form.
- The AI correctly counted
  - 20 packages (55.6%) on the first attempt.
  - 6 (16.7%) on the second attempt.
  - 3 (8.3%) on the third attempt.
  - 7 cases (19.4%), the AI failed to count accurately.



## Conclusion and Relevance

AI has the potential to optimize the counting of controlled medications, **saving time** and **human resources**. However, its needed for further development of this technology to ensure more reliable and safer results before widespread implementation.

