

Dose banding and dose rounding of  
antineoplastic agents  
English summary

Une production de l'Institut national  
d'excellence en santé  
et en services sociaux (INESSS)  
Direction du médicament

This is the English summary of the guidance entitled Standardisation (*banding*) et arrondissement (*rounding*) des doses d'agents antinéoplasiques - Revue systématique - published in August 2019.

The complete version of this guidance (in French) is available on the website of INESSS in the Publications section.

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# SUMMARY

## Introduction

With the intent of optimizing the use of antineoplastic agents, the Ministère de la Santé et des Services sociaux (MSSS) asked the Institut national d'excellence en santé et en services sociaux (INESSS) to produce a notice assessing the relevance and feasibility of implementing the principles of dose banding and dose rounding for antineoplastic agents in Québec health care facilities. This report on the systematic literature review presents the scientific evidence on which, in part, the recommendations developed in this regard are based.

## Methodology

In total, 6 of the 17 assessment questions devised to meet the MSSS's request were included in this systematic review:

1. What is the effect of dose banding and dose rounding of antineoplastic agents on the pharmacokinetic parameters of the treatment as compared to no banding or rounding?
2. What is the effect of dose banding and dose rounding of antineoplastic agents on treatment efficacy as compared to no banding or rounding?
3. What is the effect of dose banding and dose rounding of antineoplastic agents on treatment safety as compared to no banding or rounding?
4. What is the effect of dose banding and dose rounding of antineoplastic agents on medication preparation — e.g., agent wastage, reattribution of preparations, risk of error and cross-contamination — as compared to no banding or rounding?
5. What is the effect of dose banding and dose rounding of antineoplastic agents on treatment cost — e.g., preparation time or acquisition costs— as compared to no banding or rounding?
6. What is the effect of dose banding and dose rounding of antineoplastic agents on expenses in other components of the health care system —e.g., working hours or full-time equivalent — as compared to no banding or rounding?

Scientific information research on all of these assessment questions was done by consulting several databases and grey literature and was limited to certain types of publications in English and in French. The bibliographies of the selected documents were also consulted. Results were extracted independently by two evaluators using pre-established grids, and presented in the form of a narrative synthesis. For each outcome analyzed, the quality of scientific evidence was assessed based on four pre-determined criteria: methodological quality, consistency, clinical impact of the intervention and generalizability.

## Results

The search for scientific information identified 2,349 publications, of which 20 publications—6 concerning dose banding and 14 concerning dose rounding—met the selection criteria and were retained.

- Dose banding

The level of scientific evidence is deemed insufficient to draw conclusions regarding the effect of dose banding of antineoplastic agents on the pharmacokinetic parameters of agents, reduction of wastage, acquisition costs, the number of delayed preparations or full-time equivalent (FTE).

The data suggest, with a low level of scientific evidence, that dose banding could reduce preparation time for antineoplastic agents.

During the systematic review, no publication assessing the effect of dose banding of antineoplastic agents on treatment efficacy and safety or dose reattribution was found.

- Dose rounding

The level of scientific evidence is deemed insufficient to draw conclusions regarding the effect of dose rounding of antineoplastic agents on treatment safety.

The data suggest, with a low level of scientific evidence, that dose rounding of antineoplastic agents could reduce antineoplastic agent wastage.

The data suggest, with a moderate level of scientific evidence, that dose rounding of antineoplastic agents could reduce the acquisition costs for antineoplastic agents.

During the systematic review, no publication assessing the effect of dose rounding of antineoplastic agents on pharmacokinetic parameters, efficacy, dose reattribution, FTE or treatment preparation time was found.

## Conclusion

The results of the systematic review form, in part, the scientific basis for the recommendations presented in the notice regarding dose banding and dose rounding of antineoplastic agents. The primary strength of this systematic review is its rigorous methodology. However, the results reveal certain limitations in regard to the quantity and quality of the publications selected. The majority of the publications on dose banding were produced by European health care institutions, which also presents an issue from the standpoint of generalizability of the results. Finally, limited evidence was found for a number of the parameters assessed. The publication of future studies could alter the interpretation of the results.

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