

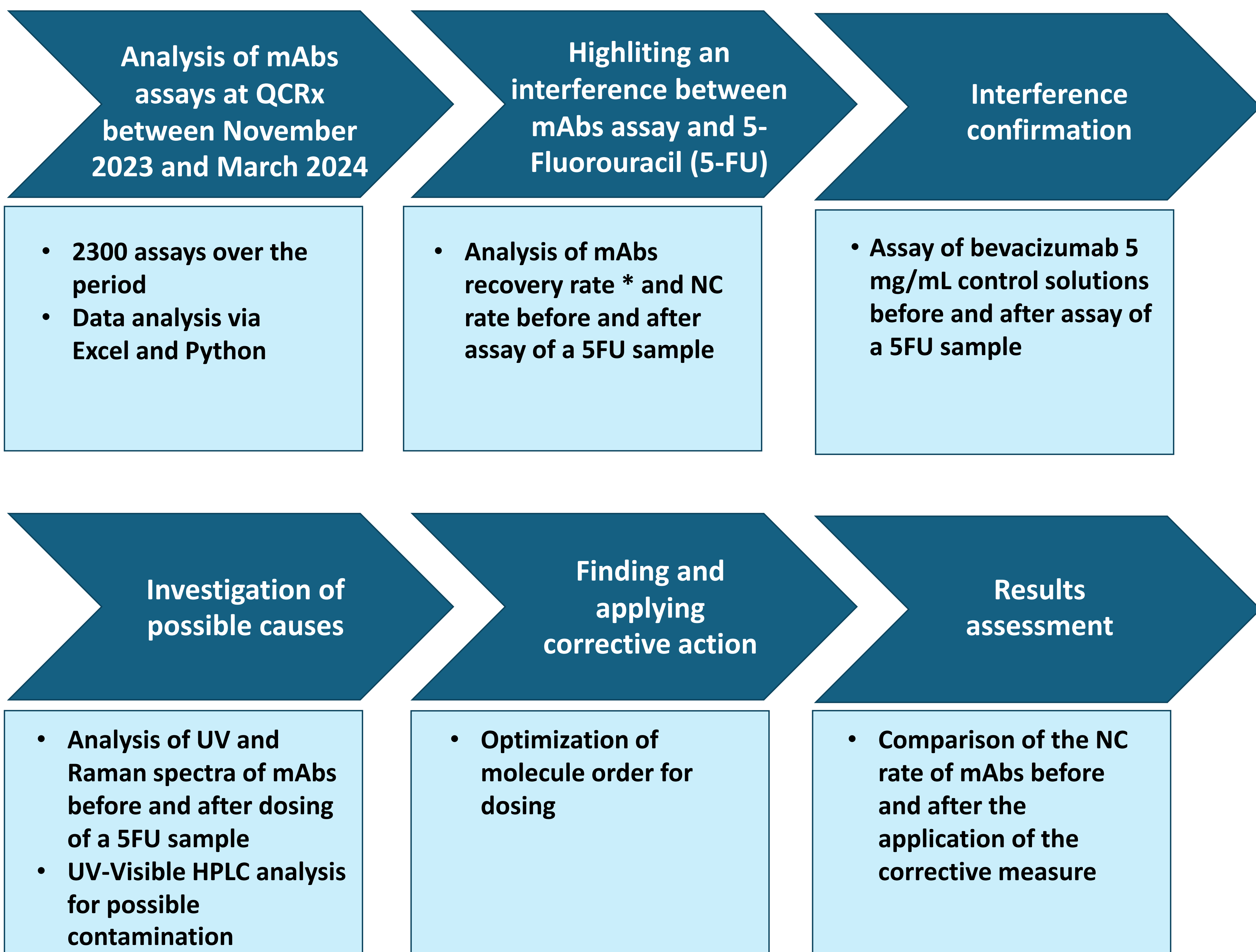
INTRODUCTION

QCRx (Icônes Services) is a UV-visible/Raman spectrophotometry method adapted to cytotoxics and monoclonal antibodies (mAbs) dosage in sterile drug preparation units. Small series of samples (1 to 15) can be analyzed as the activity progresses. In our center, around sixty preparations are daily assayed by this method and an analysis of non-conformities (NCs) is carried out each month

OBJECTIVE

The aim of this study was to analyze more precisely the mAbs dosage results, investigate the NCs observed and implement corrective measures to reduce their rate.

MATERIALS AND METHODS



\* Ratio between the analyzed concentration and the theoretical concentration of a sample, expressed as a percentage

RESULTS - DISCUSSION

Data analysis showed a significant difference in NC rate and mean recovery rate between mAbs samples dosed immediately after 5FU (N=365) and those not dosed (N=1935) (Figure 1).

Raman and UV spectra revealed an upward shift in intensities, explaining the observed overdose, but no peaks attributable to a contamination were observed (Figure 2).

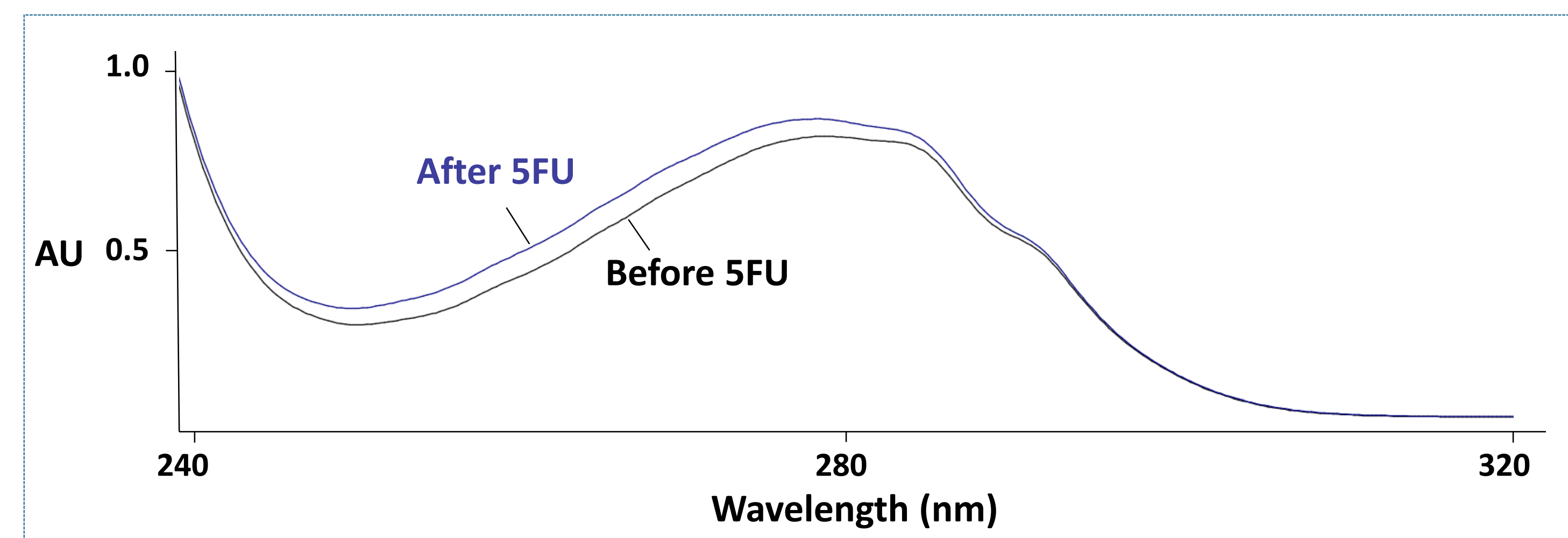


Figure 2. UV spectrum of bevacizumab assayed at QCRx before and after 5FU

HPLC-UV analysis did not reveal the presence of cross-contamination with 5FU.

NC were observed only during the same series of dosages and not after circuit washing between a sample of 5FU and mAbs. Therefore, a deposition or crystallization of 5FU in the fluidic circuit of the QCRx was suspected.

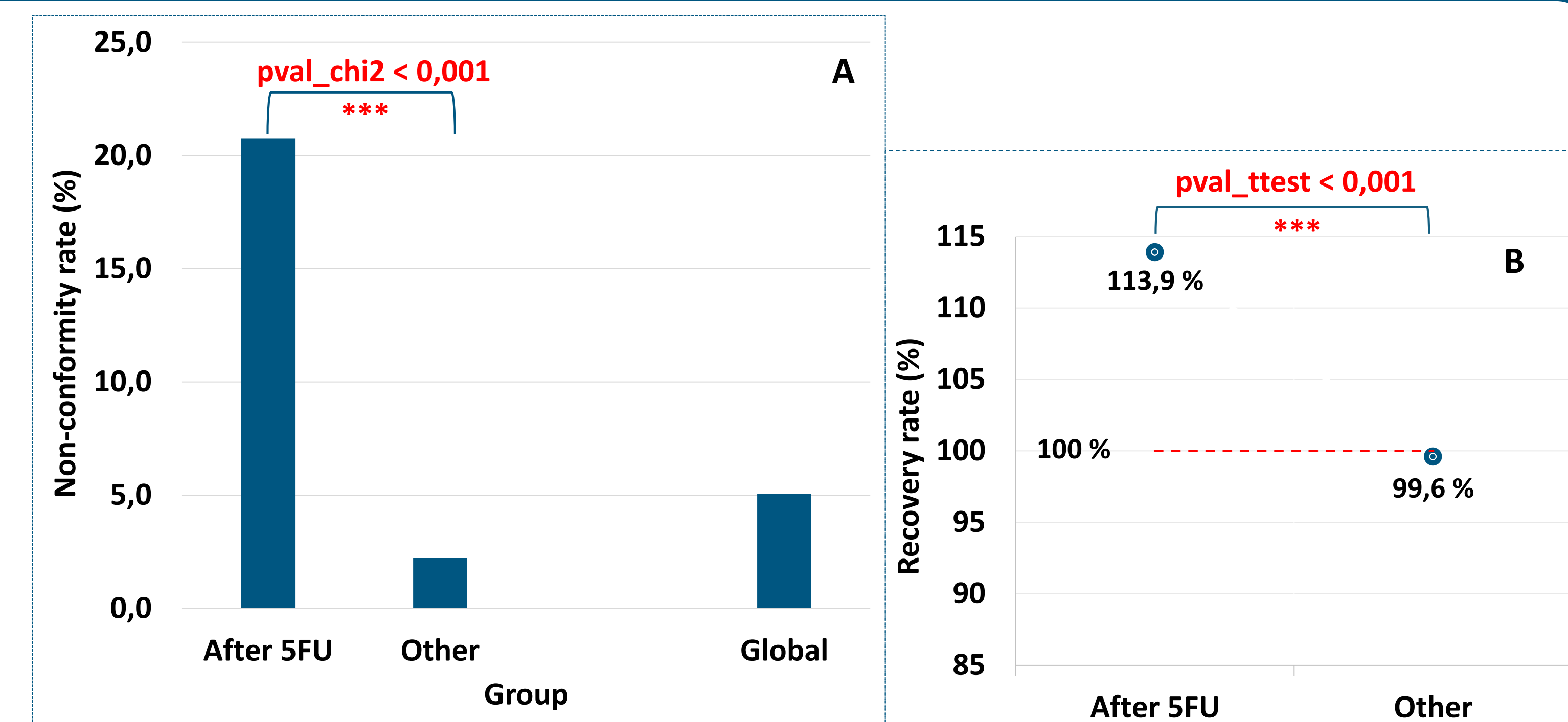


Figure 1. NC rate (A) and recovery rate (B) of mAbs measured before and after a 5FU sample

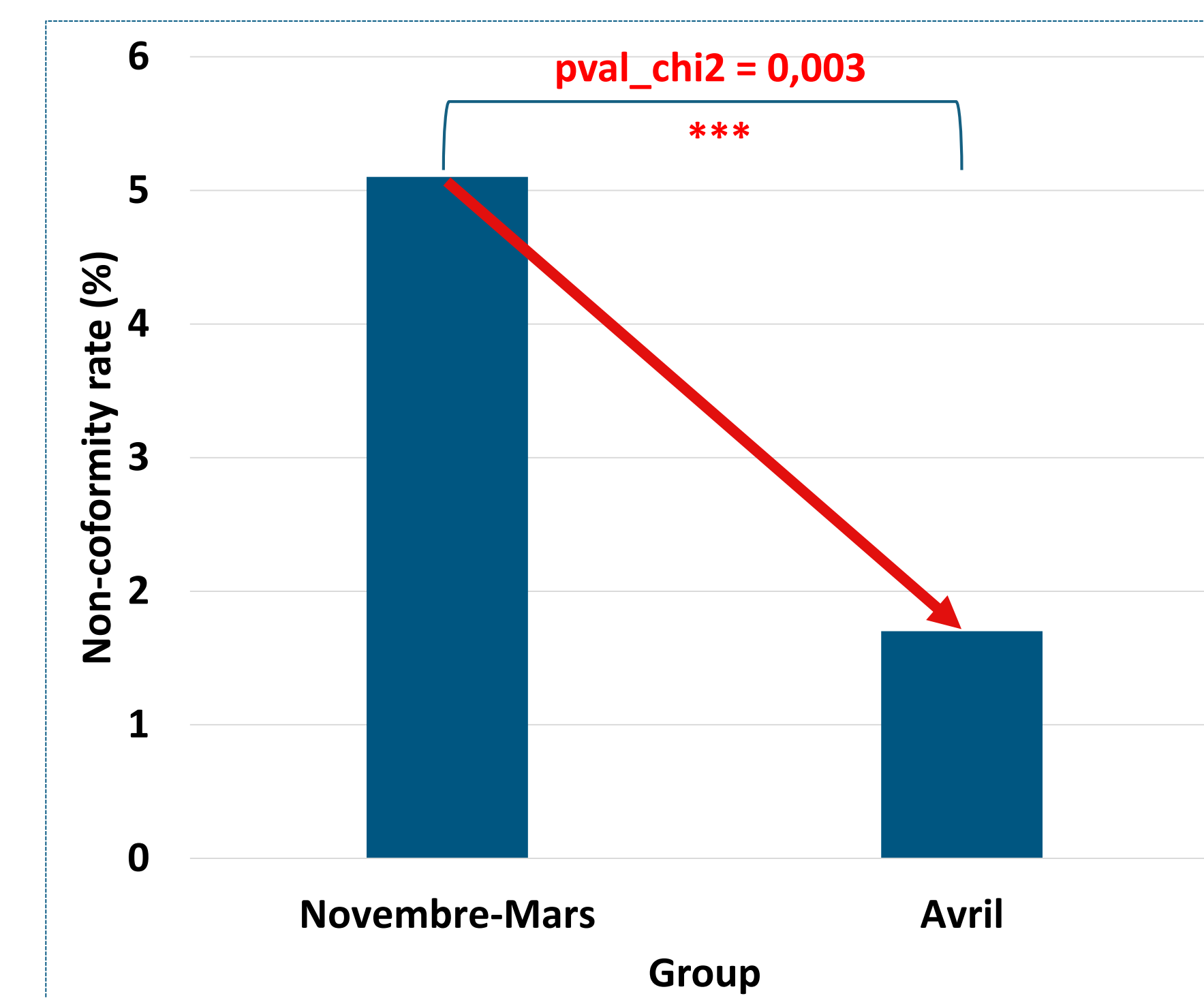


Figure 3. NC rate of mAbs before and after application of corrective measure

A simple corrective measure was applied and consisted of the systematic passage of mAbs at the start of the dosage series.

This reduced the NC rate of mAbs from 5.1% (Nov 2023-Mar 2024) to 1.7% (April 2024) (Figure 3).

CONCLUSION

The regular and in-depth analysis of the QCRx analytical NCs revealed an interference between 5FU and mAbs linked to the order in which samples were run. The exact nature of the interference has not yet been determined. The corrective measure has enabled to divide these NCs by 3, demonstrating the value of this type of monitoring to highlight NCs that are undetectable on a daily basis. However, further investigations will be necessary to determine the cause of non-conformities.