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# A study to assess the diagnostic performance of a digital remote monitoring tool for cancer patients: the POSITEA-VA study.

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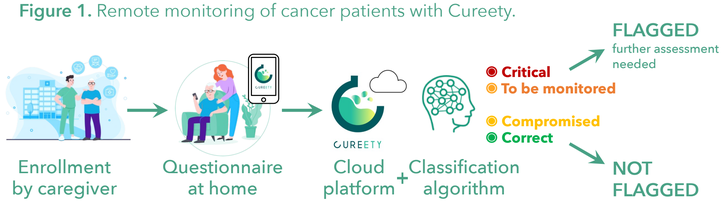
## Background

Remote monitoring of cancer patients is known to improve survival by allowing early reporting and management of adverse events[1,2]. There is also growing interest in connected, digital tools to collect patient-reported outcomes (PROs)[3,4].

We evaluated here a tool called «Cureety»[5] (**Figure 1**). Monitored patients are prompted to complete a weekly PRO questionnaire personalized to their treatment and disease. From the reported adverse events, the Cureety TechCare algorithm computes a «clinical classification» with 4 levels, red, orange, yellow, green (most to least at-risk). The medical team can then prioritize red and orange patients, and provide targeted care if needed.

The primary objective of the POSITEA-VA study was to assess the diagnostic performance of the Cureety algorithm using real-life data collected by the platform.

**Figure 1.** Remote monitoring of cancer patients with Cureety.



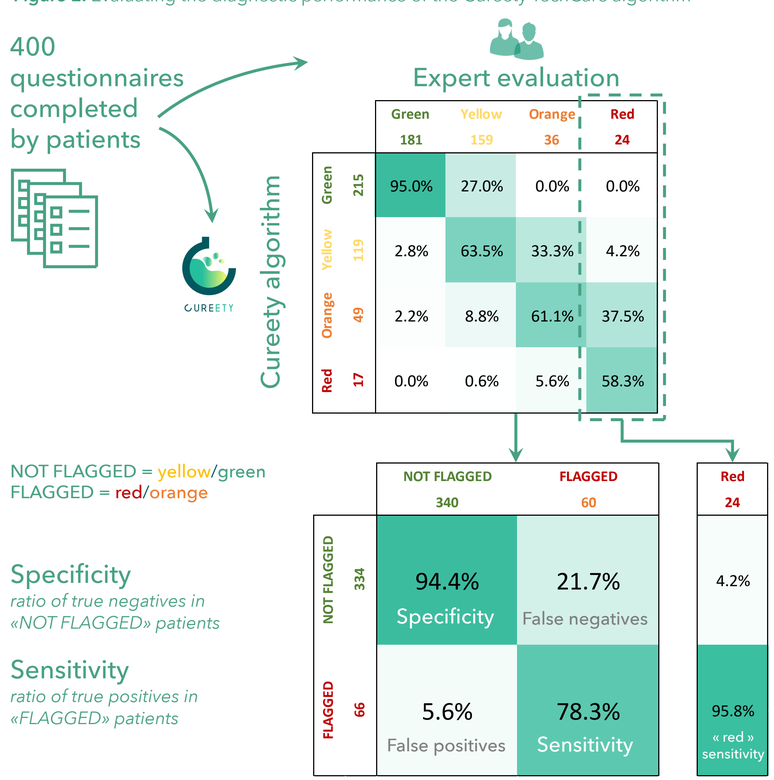

(1) Basch *et al.* Jama 318(2):197-198, 2017 – doi:10.1001/jama.2017.7156. (2) Basch *et al.* Cancer Med. 9(21):7797-7799, 2020 – doi:10.1002/cam4.3480. (3) Lu *et al.* Adv Radiat Oncol 6(1):100576, 2021 – doi:10.1016/j.adro.2020.09.016. (4) Patt *et al.* JCO Clin Cancer Inform 5:615-621, 2021 – doi:10.1200/CCI.21.00063. (5) Meghiref *et al.* JMIR Cancer 8(1), 2022 – doi:10.2196/31255

## Method

To evaluate the accuracy of the algorithm in marking patients «FLAGGED» (red/orange) vs. «NOT FLAGGED» (yellow/green), we randomly selected 400 patients that used the platform between Oct 2019 and Sep 2022. The questionnaire data was then independently assessed by 2 clinician experts, providing the reference values to calculate the sensitivity and specificity of the algorithm.

## Results

**Figure 2.** Evaluating the diagnostic performance of the Cureety TechCare algorithm




Specificity
*ratio of true negatives in «NOT FLAGGED» patients*

Sensitivity
*ratio of true positives in «FLAGGED» patients*

- Sensitivity = 78.3% (95% CI: 67.9%-88.8%)
- Specificity = 94.4% (95% CI: 92.0%-96.9%)
- The algorithm correctly marked as "FLAGGED" 95.8% (23/24) of the most at-risk patients, identified as "red" by the experts.
- False negatives were mostly orange classifications by the experts, evaluated yellow by the algorithm (12/13).
- The expert & algorithm classifications were identical at 75.8% (303/400), with most differences 1-level away (21.2%=85/400), and a few 2-level away (1.5%=6/400).

## Conclusions

High performance of the Cureety TechCare algorithm against a clinician-driven assessment.

The device is clinically relevant for use as a complement to the standard of care.

The simplicity of the output makes it useful as a tool to prioritize care: clear, 4-level, color-coded clinical classification to summarize the combined adverse events reported by the patients.