

# How Does Triage by an Electronic Symptom Checker Match with Triage by a Nurse?

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**Abstract.** Omaolo<sup>©</sup> electronic symptom checkers (ESCs) have been developed to make triage for primary health care patients in Finland. Based on the analysis of the patient's responses to a set of questions, the ESC classifies him/her as emergent, urgent, not urgent, or advices on self-care. In this study the user answered the questions posed by the electronic symptom checker, after which a nurse assessed the urgency of the same user's symptom. The triage nurse was not allowed to know the result of the electronic symptom assessment until he or she had assessed the patient's condition. The level of triage was compared between ESC and nurse in each individual case. Findings from 825 individual cases were analyzed. The mean "exactly matched" for all symptom estimates was 52.6%. The mean "exactly matched" or "overconservative but suitable" for all symptom assessments was 66.6%. Safe assessments of electronic symptom checkers accounted for 98.6% of all assessments. A case was defined as "safe" if the recommendation for action given by the symptom assessment was at most one level less urgent than the nurse's triage assessment of the same case. The findings show that electronic symptom assessments are safe compared to the assessment of an experienced nurse

**Keywords.** triage, symptom checker, eHealth, primary health care

## 1. Introduction

In a systematic review no electronic symptom checker outperformed general practitioner in diagnostic accuracy or in safety of urgency advice [1]. The performance on appropriate triage varies notably between apps [1,2]. In addition, electronic symptom checkers, on average, make triage sensitively to the need for more urgent care than the user would actually need [2,3,4]. Omaolo<sup>©</sup> electronic symptom checkers (ESCs) have been developed to make triage for primary care patients in Finland. Traditionally triage has been made by a nurse in Finland.

Based on the analysis of the patient's responses to a set of questions, the ESC classifies him/her as emergent, urgent, not urgent, or advices on self-care. The user answers questions about their symptoms on the Omaolo<sup>©</sup> website and gets triage guidance. The idea is to help the users to more adequately assess their condition, and to ease the professionals' triage workload.

In previous studies clinical validation of electronic symptom checkers has been made by clinical case vignettes [1,2]. In this study it will be used the real life users in a real life setting.

## 2. Methods

The study was a multicenter study in 14 primary care organizations. The user answered the questions posed by the electronic symptom checker, after which a nurse assessed the urgency of the same user's symptom. The triage nurse was not allowed to know the result of the electronic symptom assessment until he or she had assessed the patient's condition. Data were collected in 2019-2020. The level of triage was compared between ESC and nurse in each individual case.

## 3. Results

Findings from 825 individual cases were analyzed. The mean "exactly matched" for all symptom estimates was 52.6%. The mean "exactly matched" or "overconservative but suitable" for all symptom assessments was 66.6%. Safe assessments of electronic symptom checkers accounted for 98.6% of all assessments. A case was defined as "safe" if the recommendation for action given by the symptom assessment was at most one level less urgent than the nurse's triage assessment of the same case.

## 4. Conclusions

The findings show that Omaolo electronic symptom assessments are safe compared to the assessment of an experienced nurse.

## References

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