

# Implementation of Eetscore in eHealth: an online tool for personalized dietary advice at home or in an outpatient setting

Anne I Slotegraaf<sup>1,2</sup>, Remy HH Bemelmans<sup>3</sup>, Ben JM Witteman<sup>2,3</sup>, Menrike H Menkveld-Beukers<sup>1</sup> and Jeanne HM de Vries<sup>2</sup>

<sup>1</sup> Nutrition & Healthcare Alliance, Ede, the Netherlands.

<sup>2</sup> Wageningen University and Research, Human Nutrition and Health, Wageningen, the Netherlands.

<sup>3</sup> Gelderse Vallei Hospital, Ede, the Netherlands.



## Background

Healthcare professionals increasingly emphasize the benefit of a healthy diet for people with chronic diseases. However, in the hospital and chain care, general dietary assessment and advice is often not part of treatment or self-management. User-friendly online dietary assessment tools may help healthcare professionals and patients to assess and monitor the diet, and provide or get personalized dietary advice.

## Eetscore

The Eetscore is a validated self-administered web-based screener for assessing diet quality. It consists of a short Food Frequency Questionnaire and is scored with the Dutch Healthy Diet 2015-index to evaluate the adherence to the Dutch Food Based Dietary Guidelines. The Eetscore also provides personalized dietary advice based on the assessment.

## Methods

The Eetscore was implemented in outpatient settings via eHealth, and diet quality of 135 hypertension patients and 36 cardiac rehabilitation patients was assessed. The use of the Eetscore was also evaluated in 75 patients and 40 healthcare professionals by questionnaires, interviews and focus groups. The dietary advice of the Eetscore was evaluated on usability, practicality and feasibility

## Objective

To evaluate whether the Eetscore in eHealth is useful to support patients and healthcare professionals in nutrition communication.

**Eetscore FFQ** is a short online food frequency questionnaire

**Eetscore score** by Dutch Healthy Diet (DHD) index

Component	Guideline	Min. score (=0)	Max. score (=10)
1. Vegetables	Eat at least 200 g per day	0 g/d	≥ 200 g/d
2. Fruit	Eat at least 200 g per day	0 g/d	≥ 200 g/d
3. ....			

**Eetscore advice** (example)

Your total score: **90** out of 160

Your diet does not adhere to the Dutch Dietary Guidelines | Your diet completely adheres to the Dutch Dietary Guidelines

Vegetables	Fruit	Whole grain	Legumes
Nuts	Dairy	Fish	Tea
Fats and oils	Coffee	Red meat	Processed meat
Sweetened beverages	Alcohol	Salt	Unhealthy choices

Your score for vegetables: **4.9** out of 10  
You eat little vegetables or you do not eat vegetables every day. You could do better!

**Advice**  
There are several ways to increase your vegetable intake. Tips to increase your vegetable intake:

- Add herbs and spices to your vegetables to give more taste. Examples of herbs and spices: basil, nutmeg, and curry.
- ....

## Results

Hypertension and cardiac rehabilitation patients had a significantly lower diet quality score ( $97.2 \pm 19.3$  and  $98.2 \pm 21.4$ , respectively) compared to a reference population ( $111 \pm 17.5$ ,  $P < 0.001$ ).

Most patients (72%) indicated that the Eetscore provides insight into their dietary habits and 64% was motivated to improve their diet. Patients suggested to better tailor the advice providing more practical tips, for example by recipes.

Healthcare professionals reported the Eetscore as a quick and useful tool to get insight into diet quality of their patients and found the dietary advice helpful as guidance in healthcare practice and for self-management. They believed using the Eetscore may improve nutrition communication between healthcare professionals.

## Conclusions and perspectives

Healthcare professionals and patients judged the Eetscore as a useful tool for use both at home as well as in outpatient clinics. Future perspectives include further implementation of Eetscore for other healthcare organisations or specific patient populations. Repeated assessment of the Eetscore allows evaluation of dietary improvement over time. Moreover, the dietary advice will be more tailored to the personal situation of an individual.

