IMPLEMENT-ED

Published: 12-02-2025 Last updated: 22-05-2025

Objective 1: To assess the effect of implementation of a dashboard, with (near) real-time data feedback of risk stratification tools and care processes, on relevant clinical outcomes (in-hospital mortality, ED-LOS, admission rate) and discrepancy...

Ethical review	Not available
Status	Pending
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON57481

Source

Onderzoeksportaal

Brief title

Effects of Implementation of Real-time Feedback of Risk Stratification Tools in the Emergency Department on Care Processes and Clinical Outcomes

Condition

• Other condition

Synonym Overall ED population

Research involving Data, Human

Sponsors and support

Primary sponsor: Leids Universitair Medisch Centrum **Source(s) of monetary or material Support:** Eerste geldstroom (geld van Ministerie van OC&W aan universiteiten)

Intervention

• Other intervention

Explanation

N.a.

Outcome measures

Primary outcome

Emergency department length of stay

Secondary outcome

In-hospital mortality, hospital admission, discrepancy between predicted, observed admissions, 7-day revisits, attitudes of health care professionals on machine learning.

Study description

Background summary

Emergency Departments (EDs) are typically a high-workload, dynamic and, often unpredictable clinical environment. In such an environment it is difficult to provide reliably accessible, efficient and safe patient care, as reflected in staff fatigue, prolonged ED length of stay (LOS), delayed ED transfers to wards and inefficient use of staff and resources throughout the system, all leading to crowding.

Risk stratification tools can help in these situations by identifying sick or vulnerable patients. However, timely risk stratification can be difficult; especially during crowded times or at night there is a risk of omissions or misinterpreting an assessment. Risk stratification is even more useful when it is automated, as it allows immediate operational decisions to be made. A dashboard with automated real-time risk stratification combined with information on healthcare processes would address these matters. The introduction of a machine learning algorithm in such a dashboard would bring the advantage that it always performs and never fatigues at crowded times or in night shifts.

While healthcare professionals recognize the value of new information technologies, such as automated risk coding dashboards and machine learning algorithms at the workplace, few studies have evaluated the effects on healthcare professionals and relevant clinical outcomes in the ED.

Study objective

Objective 1: To assess the effect of implementation of a dashboard, with (near) real-time data feedback of risk stratification tools and care processes, on relevant clinical outcomes (in-hospital mortality, ED-LOS, admission rate) and discrepancy between predicted and observed admissions in a tertiary ED in the Netherlands.

Objective 2: To assess the effect of addition of a ML algorithm for hospitalization in this dashboard, on relevant clinical outcomes (in-hospital mortality, ED-LOS, admission rate) and discrepancy between predicted and observed admissions) in a tertiary ED in the Netherlands.

Study design

A 'before-after' design study of the effects of the implementation of a dashboard with realtime risk stratification and process of care information and of the effects of the introduction of a machine learning algorithm for hospitalization supported by an educational program, with a before-after-after design, performed in the emergency department of a tertiary care centre in (Leiden, LUMC) the Netherlands. Data is collected during six months before implementation ('before'), during six months after implantation of the dashboard with an educational program ('after I'), and during six months after implementation of an ML algorithm ('after II'), using data of the Netherlands Emergency department Evaluation Database (NEED).

Intervention

Introduction of a dashboard with real-time information on care processes and in that dashboard a machine-learning based hospitalization prediction tool. (Note: information provision and standard care, not a linked intervention related to care itself).

Study burden and risks

Benefits: The adoption of a dashboard at the workplace with automated real-time information about care processes and risks of patients attending the ED, could improve patient outcomes i.e. by helping healthcare personnel prioritizing the sickest and frailest patients and ensure early hospitalization of these groups to an appropriate level of care. In addition, the use of an ML algorithm concerning hospitalization can enable early initiating of the admission process, by automatically updating physicians' knowledge about a patients' likelihood of admission and thus shortening ED-LOS.

Burden: Not applicable.

Risks: Not applicable.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Children (2-11 years) Adolescents (16-17 years) Adults (18-64 years) Elderly (65 years and older) Babies and toddlers (28 days-23 months) Adolescents (12-15 years)

Inclusion criteria

All consecutive ED patients

Exclusion criteria

None. All consecutive ED visits registered in the NEED database are included in the study

unless patients objected to participate in the quality registry.

Study design

Design

Study phase:	N/A
Study type:	Observational non invasive
Intervention model:	Single
Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Health services research

Recruitment

NL	
Recruitment status:	Pending
Start date (anticipated):	01-04-2025
Enrollment:	6000
Duration:	1 months (per patient)
Туре:	Anticipated

Medical products/devices used

Product type: N.a.

IPD sharing statement

Plan to share IPD: Yes

Plan description

De gegevens worden geanalyseerd en ingediend voor peer-reviewed publicatie en presentatie op wetenschappelijke conferenties. Onderzoeksgegevens worden desgevraagd,met relevante onderzoeksvraag, verstrekt door de hoofdonderzoeker

Ethics review

Not available

Date:	
Application type:	
Review commission:	

28-02-2025 First submission Validatie nWMO registratie door CCMO

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register Research portal **ID** NL-009360