

# Long-term effects of a strategy to reduce inappropriate use of catheters

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<b>Registration date</b> 11/02/2022	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 08/11/2024	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

In the era of increasing healthcare costs, it is crucial to reduce low-value care with the aim of improving the quality and safety of care and lowering costs. One aspect of care that is routinely given but that may be necessary is the use of catheters.

A urinary catheter is a flexible tube used to empty the bladder and collect urine in a drainage bag.

A peripheral venous catheter is a catheter (small, flexible tube) placed into a peripheral vein for venous access to administer intravenous therapy such as medication fluids.

A multifaceted de-implementation strategy has proven to be effective in a trial called 'Reduce Inappropriate use of CATHeters' (RICAT) in the Netherlands. However, knowledge about the sustainability of de-implementation strategies is lacking. The aim of this study is to investigate the long-term sustainability of the de-implementation strategy that was implemented three years ago during the RICAT-trial. Further, we aim to identify general factors that contribute to sustainable de-implementation through use of a qualitative interview study.

### Who can participate?

Patients who are admitted to a medical, non-surgical, ward and who have a peripheral venous catheter (PVC) or urinary catheter on the days of data collection.

### What does the study involve?

We will perform an observational quantitative study, in which we will prospectively include patients with a PVC or urinary catheter. For these patients, we will assess whether the medical indications for this catheter are appropriate on the days of data collection.

### What are the possible benefits and risks of participating?

The results of this study will be used to further improve healthcare pathways regarding the appropriate use of catheters. The measurements do not influence patients' care and treatment plans. Further, the burden on patients is limited. A research physician will screen patients for having a PVC or urinary catheter, after which relevant data regarding the medical indication of the catheter will be collected from the electronic patient record.

Where is the study run from?  
Amsterdam UMC, location AMC (the Netherlands)

When is the study starting and how long is it expected to run for?  
November 2021 to April 2023

Who is funding the study?  
ZonMw (the Netherlands)

Who is the main contact?  
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## Contact information

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## Additional identifiers

**Clinical Trials Information System (CTIS)**

Nil known

**ClinicalTrials.gov (NCT)**

Nil known

**Protocol serial number**

Nil known

## Study information

**Scientific Title**

Long-term sustainability of a de-implementation project to Reduce Inappropriate Use of CATHeters

**Acronym**

RICAT-2

**Study objectives**

We hypothesized that we will measure a sustained reduction of inappropriate use of peripheral venous catheters (PVC) of 15%, similar to the results of the RICAT-trial.

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

On 07/01/2022, the Medical Ethics Review Committee of the Academic Medical Center Amsterdam confirmed that the Medical Research Involving Human Subjects Act (WMO) does not apply to this study and that official approval of this study by their committee is not required. Reference number W21\_560#22.001

**Study design**

Mixed-methods design including an observational quantitative part and a qualitative interview study

**Primary study design**

Observational

**Study type(s)**

Other

**Health condition(s) or problem(s) studied**

For the quantitative part, adult patients with a PVC or urinary catheter that are admitted to a medical ward. For the qualitative part, healthcare workers from the medical wards, who participated in executing and maintaining the de-implementation strategy.

**Interventions**

We will perform a multicenter observational study to measure the percentage of inappropriate use of peripheral intravenous catheters (PVCs) and urinary catheters. In addition, we will perform a qualitative interview study to assess to what extent the de-implementation strategy

is maintained, and what barriers and facilitators apply to maintaining the effect of the de-implementation strategy.

Quantitative part: We will only collect data about the medical indication for the peripheral venous catheter or urinary catheter on the days of data collection.

Qualitative part: We will hold a one-time focus group interview with the healthcare workers in each participating hospital.

## **Intervention Type**

Other

## **Primary outcome(s)**

Percentage of inappropriate use of PVCs on the days of data collection will be collected by a research physician or research student. These data will be collected from medical records in an electronic Good Clinical Practice-compliant database. Based on the information from the medical records, the research physician or research student will assess if the use is inappropriate. The following indications will be considered appropriate:

### a. Peripheral intravenous catheter

- Delivery of peripherally compatible infusate (intravenous fluids and medications) at least once in 24 h
- Injection of contrast fluids
- Intravenous access for cardiac dysrhythmia
- Transfusion of blood and blood products

### b. Urinary catheter

- Accurate measurements of urinary output in patients who are critically ill when required for treatment
- Acute urinary retention or bladder outlet obstruction ( $\geq 150$  mL)
- Assist in healing of open sacral or perineal wounds in patients with urinary incontinence
- Continuous bladder irrigation for haematuria
- Palliative care for patients who are terminally ill if needed
- Patient requires prolonged immobilisation
- Before or after surgery according to (local) protocol
- Volume measurements of urine output for diagnostics (24 h urine), which cannot be assessed by other collection strategies

## **Key secondary outcome(s)**

1. Number of patients with more than one PVC with an inappropriate indication on the days of data collection measured as above.
2. Barriers and facilitators of the sustainability of the effect of the de-implementation strategy measured using the themes that will emerge from the results of the focus group interviews conducted at a single time point

## **Completion date**

30/04/2023

## **Eligibility**

### **Key inclusion criteria**

1. Adult patients admitted to internal medicine, gastroenterology, geriatric, oncology, and pulmonology wards, and non-surgical acute admission units who have a PVC or urinary catheter on the day of data collection, or

2. Healthcare workers (e.g., nurses, physicians) who are or who were responsible for maintaining the de-implementation strategy to reduce inappropriate use of catheters

**Participant type(s)**

Mixed

**Healthy volunteers allowed**

No

**Age group**

Adult

**Sex**

All

**Total final enrolment**

1155

**Key exclusion criteria**

1. Patients who are admitted for an elective short stay, and patients who are terminally ill
2. Patients with chronic use of catheters, defined as having any type of catheter before hospital admission, and no new inserted catheter of any type

**Date of first enrolment**

01/05/2022

**Date of final enrolment**

01/04/2023

## **Locations**

**Countries of recruitment**

Netherlands

**Study participating centre**

**Amsterdam UMC location AMC**

Meibergdreef 9

Amsterdam

Netherlands

1105 AZ

**Study participating centre**

**Amsterdam UMC location Vumc**

De Boelelaan 1117

Amsterdam

Netherlands

1081 HV

**Study participating centre****BovenIJ ziekenhuis**

Statenjachtstraat 1  
Amsterdam  
Netherlands  
1034 CS

**Study participating centre****Dijklander Ziekenhuis locatie Hoorn**

Maelsonstraat 3  
Hoorn  
Netherlands  
1624 NP

**Study participating centre****Flevoziekenhuis**

Hospitaalweg 1  
Almere  
Netherlands  
1315 RA

## Sponsor information

**Organisation**

Amsterdam University Medical Centers

**ROR**

<https://ror.org/05grdyy37>

**Organisation**

Radboud University Nijmegen Medical Centre

## Funder(s)

**Funder type**

Government

**Funder Name**

ZonMw

**Alternative Name(s)**

Netherlands Organisation for Health Research and Development

**Funding Body Type**

Private sector organisation

**Funding Body Subtype**

Other non-profit organizations

**Location**

Netherlands

## Results and Publications

**Individual participant data (IPD) sharing plan**

The data-sharing plans for the current study are unknown and will be made available at a later date.

**IPD sharing plan summary**

Data sharing statement to be made available at a later date

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>		16/08/2024	08/11/2024	Yes	No