# RIVA-DM: Effectiveness and Safety of Rivaroxaban vs. Warfarin in Nonvalvular Atrial Fibrillation and Diabetes Mellitus: Analysis of Electronic Health Record Data

**First published:** 20/08/2020

**Last updated:** 02/07/2024

Study Finalised

## Administrative details

**PURI**

https://redirect.ema.europa.eu/resource/47671

**EU PAS number**

EUPAS36634

**Study ID**

47671

**DARWIN EU® study**

No

**Study countries**

United States

**Study status**

Finalised

# Research institutions and networks

## Institutions

### Bayer AG

**First published:** 01/02/2024

**Last updated:** 01/02/2024

**Institution**

## Contact details

**Study institution contact**

Bayer Clinical Trials BAYER AG

**Study contact**

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**Primary lead investigator**

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**Primary lead investigator**

## Study timelines

**Date when funding contract was signed**
Planned: 02/07/2020

Actual: 02/07/2020

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**Study start date**
Planned: 21/08/2020

Actual: 21/08/2020

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**Data analysis start date**
Planned: 31/07/2021

Actual: 31/07/2021

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**Date of final study report**
Planned: 31/10/2021

Actual: 05/11/2021

## Sources of funding

- Pharmaceutical company and other private sector

## More details on funding

Bayer AG

## Study protocol

21449_Study Protocol_V1.0_2020-08-19_Redacted.pdf(679.75 KB)

21449_Study Protocol_V2.0_2020-11-09_Redacted.pdf(1.14 MB)

## Regulatory

**Was the study required by a regulatory body?**

No

**Is the study required by a Risk Management Plan (RMP)?**

Not applicable

# Methodological aspects

## Study type

## Study type list

**Study topic:**

Disease /health condition

Human medicinal product

**Study type:**

Non-interventional study

**Scope of the study:**

Effectiveness study (incl. comparative)

Safety study (incl. comparative)

**Data collection methods:**

Secondary use of data

**Main study objective:**

To compare the effectiveness and safety of rivaroxaban versus warfarin in NVAF patients with comorbid type 2 diabetes using the Optum® De-Identified EHR dataset, including: 1. The composite outcome of stroke or systemic embolism (SSE) 2. Any major or clinical-relevant nonmajor bleed resulting in hospitalization

## Study Design

**Non-interventional study design**

Cohort

## Study drug and medical condition

**Study drug International non-proprietary name (INN) or common name**

RIVAROXABAN

WARFARIN

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**Medical condition to be studied**

Atrial fibrillation

## Population studied

**Short description of the study population**

The study population of interest will be those with NVAF and comorbid type 2 diabetes, OAC-naïve and newly-initiated on rivaroxaban or warfarin (defined as the index date), be active in the data set for at least 12 months prior to the index event (based on the “First Month Active” field provided in the Optum data

set) and have received care documented in the EHR database from at least one provider in the 12-months prior to the index date.

Selection criteria

To be included in the study patients will have to:

• Be ≥18 years of age at the time of anticoagulation initiation

• Have diagnoses of type 2 diabetes and NVAF (see Annex 1, .xlxs file for specific billing codes, code positions and encounter types)

o Given the high specificity (>98%) of billing codes for identifying diabetes, a code for diabetes will be considered sufficient to indicate diabetes in our study, regardless of A1c value (which is also a treatment goal)

o Due to the moderate sensitivity of billing codes for diabetes (~60-70%), patients without a billing code for diabetes, but having an A1c>6.5% AND receiving an antihyperglycemic medication (oral medications, GLP1-antagonists) will be considered diabetics as well

• Have no record of prior OAC use in the prior 12-months

• Newly initiated on rivaroxaban or warfarin

• Have ≥12-months of EHR activity prior to the index date and received care documented in the EHR database from at least one provider in the 12-months prior.

We will exclude patients with:

• Evidence of valvular heart disease defined as any rheumatic heart disease, mitral stenosis or mitral valve repair/replacement

• Pregnancy

• Use of rivaroxaban doses other than 15 mg once daily or 20 mg once daily or the presence of other indication(s) for OAC use

• Any prior OAC utilization per written prescription or patient self-report at baseline.

**Age groups**

Adults (18 to < 46 years)

Adults (46 to < 65 years)

Adults (65 to < 75 years)

Adults (75 to < 85 years)

Adults (85 years and over)

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**Special population of interest**

Other

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**Special population of interest, other**

Nonvalvular Atrial Fibrillation patients

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**Estimated number of subjects**

75000

## Study design details

**Outcomes**

1. Composite of stroke or systemic embolism 2. Any major or clinical-relevant nonmajor bleed resulting in hospitalization, Secondary objectives will compare rivaroxaban versus warfarin in NVAF patients with comorbid type 2 diabetes for the risk of ischemic stroke, systemic embolism, need for revascularization or major amputation, intracranial hemorrhage, critical organ bleeding per ISTH categories, any extracranial bleeding, etc.

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**Data analysis plan**

Patients receiving rivaroxaban will be 1:n matched to warfarin patients based on propensity scores. We will also use stabilized-inverse probability of treatment weighting (IPTW), overlap weighting and multivariable regression,

competing risk regression approaches to adjust for potential confounding. Analysis of the primary effectiveness and safety endpoints by key subgroups will be performed as well.

## Documents

**Study results**

21449_EU PAS Abstract_Redacted_V1.0_2021-11-05.pdf(542.81 KB)

**Study report**

21449_Study Report_Redacted_V1.0_2021-11-05.pdf(867.86 KB)

# Data management

## Data sources

**Data sources (types)**

Administrative healthcare records (e.g., claims)

## Use of a Common Data Model (CDM)

**CDM mapping**

No

## Data quality specifications

**Check conformance**

Unknown

**Check completeness**

Unknown

**Check stability**

Unknown

**Check logical consistency**

Unknown

## Data characterisation

**Data characterisation conducted**

No