Post-Authorisation Active Surveillance Study of Myocarditis and Pericarditis Among Individuals in Europe Receiving the Pfizer-BioNTech Coronavirus Disease 2019 (COVID-19) Vaccine

First published: 22/08/2022

Last updated: 05/11/2025

Study Finalised

Administrative details

EU PAS number

EUPAS47708

Study ID

47709

DARWIN EU® study

No

Study countries

- ☐ Italy
- ☐ Netherlands

- [ ] Norway
- [ ] Spain
- [ ] United Kingdom

Study description

This study will address the following research question, “What is the clinical course of myocarditis and pericarditis cases after being vaccinated with the Pfizer-BioNTech COVID-19 vaccine in European countries?”.

This cohort study is nested in the ongoing retrospective cohort study (EUPAS41623) titled "Post Conditional Approval Active Surveillance Study Among Individuals in Europe Receiving the Pfizer-BioNTech Coronavirus Disease 2019 (COVID-19) Vaccine." The parent study includes individuals across 5 European countries who receive at least 1 dose of the Pfizer-BioNTech COVID-19 vaccine, as well as individuals who did not receive a COVID-19 vaccine. For the primary objective (natural history), the study will be conducted in the cohort of cases of myocarditis and of pericarditis identified in the full population of the parent study. For the secondary objective (risk factors), the study will be conducted using the population from the parent study component in which vaccinated and unvaccinated individuals are matched 1:1 on date of vaccination in the vaccinated group and date of study eligibility in the unvaccinated group. Individuals are also matched on age, sex, history of COVID-19, place of residence, history of influenza vaccination, pregnancy status, immunocompromised status, presence of pre-existing medical conditions, and socioeconomic status/education level. The matching variables, vaccination status, and other baseline variables to be identified in a review of the medical literature will be considered as potential risk factors for the development of myocarditis and of pericarditis.

Study status

Finalised

Research institutions and networks

Institutions

Pfizer

First published: 01/02/2024

Last updated: 01/02/2024

Institution

University Medical Center Utrecht (UMCU)

☐ Netherlands

First published: 24/11/2021

Last updated: 22/02/2024

Institution | Educational Institution | Hospital/Clinic/Other health care facility | ENCePP partner

RTI Health Solutions (RTI-HS)

☐ France
☐ Spain
☐ Sweden
☐ United Kingdom
☐ United Kingdom (Northern Ireland)
☐ United States

First published: 21/04/2010

Last updated: 13/03/2025

Institution | Not-for-profit | ENCePP partner

Teamit Institute

☐ Spain

First published: 12/03/2024

Last updated: 12/03/2024

Institution | Other | ENCePP partner

Fondazione Penta ONLUS

Networks

Vaccine monitoring Collaboration for Europe (VAC4EU)

☐ Belgium
☐ Denmark
☐ Finland
☐ France
☐ Germany
☐ Italy
☐ Netherlands
☐ Norway

☐ Spain

☐ United Kingdom

First published: 22/09/2020

Last updated: 22/09/2020

Network | Outdated | ENCePP partner

Contact details

Study institution contact

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Study contact

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Primary lead investigator

Cynthia de Luise

Primary lead investigator

Study timelines

Date when funding contract was signed

Planned: 27/10/2021

Actual: 27/10/2021

Study start date

Planned: 31/12/2022

Actual: 10/02/2023

Data analysis start date
Planned: 31/03/2024

Actual: 31/03/2024

Date of interim report, if expected
Planned: 22/09/2023

Actual: 29/09/2023

Date of final study report
Planned: 30/06/2025

Actual: 30/06/2025

Sources of funding

- Pharmaceutical company and other private sector

More details on funding

Pfizer

Study protocol

C4591038_PROTOCOL AMENDMENT 2_V3_13MAY2022.pdf (4.52 MB)

C4591038_PROTOCOL AMENDMENT 4 V5.0_11JUN2025.pdf (3.08 MB)

Regulatory

Was the study required by a regulatory body?

Yes

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

EU RMP category 3 (required)

Methodological aspects

Study type

Study type list

Study topic:

Disease /health condition

Study type:

Non-interventional study

Scope of the study:

Disease epidemiology

Other

If ‘other’, further details on the scope of the study

natural history and risk factors

Data collection methods:

Secondary use of data

Main study objective:

To describe the clinical course (treatment, survival, hospitalisations, long-term cardiac outcomes) of myocarditis or pericarditis among individuals diagnosed with myocarditis and/or pericarditis after receiving at least 1 dose of the Pfizer-

BioNTech COVID-19 vaccine and among individuals diagnosed with myocarditis and/or pericarditis who had no prior COVID-19 vaccination, using a cohort study.

Study Design

Non-interventional study design

Cohort

Study drug and medical condition

Medicinal product name

COMIRNATY

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

COVID-19 MRNA VACCINE (NUCLEOSIDE-MODIFIED)

FAMTOZINAMERAN

RAXTOZINAMERAN

RILTOZINAMERAN

TOZINAMERAN

Anatomical Therapeutic Chemical (ATC) code

(J07BN01) covid-19, RNA-based vaccine

covid-19, RNA-based vaccine

Medical condition to be studied

Myocarditis

Pericarditis

Population studied

Age groups

- Preterm newborn infants (0 – 27 days)
- Term newborn infants (0 – 27 days)
- Infants and toddlers (28 days – 23 months)
- Children (2 to < 12 years)
- Adolescents (12 to < 18 years)
- 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)

Study design details

Outcomes

Potential outcomes for myocarditis are treatment, recovery, survival, hospitalisations, sudden cardiac death, heart failure, cardiogenic shock, fulminant myocarditis, inflammatory cardiomyopathy, heart transplant, and arrhythmia.

Potential outcomes for pericarditis are treatment, recovery, survival, hospitalisations, and chronic, restrictive, and recurrent pericarditis. Potential risk factors for myocarditis and pericarditis, such as age, sex, Pfizer-BioNTech COVID-19 vaccination status, vaccine doses received (e.g. first, second, third, and booster doses), and history of COVID-19.

Data analysis plan

For the primary objective, the distributions of vaccination status and other baseline characteristics will be described. For continuous variables, means,

standard deviations and quartiles will be estimated. For categorical variables, counts and proportions will be estimated. The missingness of variables will also be described. The occurrence of the different treatments and outcomes during follow-up will be described using counts and proportions. Continuous variables (e.g. length of stay) will be described using means, standard deviations and quartiles. When appropriate, the occurrence of time-to-event outcomes (e.g. death) will be described using the Kaplan-Meier estimator or curve. Analysis will be performed overall by sex and age, COVID-19 history, vaccination status, and time since vaccination.

Documents

Study report

C4591038_INTERIM REPORT ABSTRACT_18SEP2023.pdf (189.71 KB)

c4591038-interim-report-body.pdf (5.56 MB)

c4591038-final report abstract.pdf (699.96 KB)

C4591038_FINAL REPORT PART 1_11JUN2025.pdf (18.12 MB)

C4591038_FINAL REPORT PART 2_11JUN2025.pdf (19.12 MB)

Study, other information

C4591038_PROTOCOL AMENDMENT 3 V4.0_08AUG2024.pdf (1 MB)

Data management

ENCePP Seal

The use of the ENCePP Seal has been discontinued since February 2025. The ENCePP Seal fields are retained in the display mode for transparency

but are no longer maintained.

Data sources

Data source(s)

Clinical Practice Research Datalink

The Information System for Research in Primary Care (SIDIAP)

PHARMO Data Network

ARS Toscana

Pedianet

EpiChron Cohort

Norwegian Health Registers

Data sources (types)

Administrative healthcare records (e.g., claims)

Disease registry

Electronic healthcare records (EHR)

Use of a Common Data Model (CDM)

CDM mapping

Yes

CDM Mappings

CDM name

ConcepTION CDM

CDM website

https://www.imi-conception.eu/

CDM release frequency

6 months

Data quality specifications

Check conformance

Yes

Check completeness

Yes

Check stability

Yes

Check logical consistency

Yes

Data characterisation

Data characterisation conducted

No