Pregnancy and Infant Outcomes Following Exposure to PAXLOVID: A Post-Authorization Safety Study

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Study Ongoing

Administrative details

EU PAS number

EUPAS106321

Study ID

106322

DARWIN EU® study

No

Study countries

United States

Study description

This study aims to answer the research question: What is the risk of pregnancy outcomes of interest, and infant outcomes of interest, among pregnant women with COVID-19 exposed to PAXLOVID, and among pregnant women with COVID-19 unexposed to PAXLOVID?
To estimate the risk of major congenital malformation [MCM] among pregnant women who are exposed to PAXLOVID (and not other COVID-19 treatments) during pregnancy (Cohort 1), pregnant women not exposed to PAXLOVID but exposed to other COVID-19 treatments (Cohort 2), and pregnant women with COVID-19 not exposed to any COVID-19 treatments (Cohort 3).
The secondary objectives of this study are to: 1. Estimate the risk of pregnancy outcomes (spontaneous abortion, induced termination, stillbirth, livebirth) and the risk of infant outcomes (preterm birth, small for gestational age, postnatal growth deficiency and infant developmental delay) for livebirths among the 3 study cohorts. 2. Pending sufficient sample size, to compare the risk of pregnancy and infant outcomes in Cohort 1 compared to, separately, Cohort 2 and Cohort 3.
Exposure (or lack thereof) to COVID-19 treatments will be assessed via the presence of pharmacy and/or medical claims in the Optum Research Database (ORD).
This is an observational cohort study using administrative healthcare claims data of commercially insured persons in the United States (the ORD). Medical records will be retrieved for the adjudication of select outcomes from the subset of patients for whom access is available.

Study status

Ongoing

Research institutions and networks

Networks

OptumInsight Life Sciences, Inc.

Contact details

Study institution contact

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Study contact

heather.ward@pfizer.com

Primary lead investigator

Heather Ward

Primary lead investigator

Study timelines

Date when funding contract was signed

Actual: 30/01/2023

Study start date

Actual: 02/01/2024

Date of final study report

Planned: 01/07/2028

Sources of funding

More details on funding

Pfizer 100%

Study protocol

C4671038_PROTOCOL_V1_22JUN2023.pdf (1.25 MB)

C4671038_PROTOCOL AMENDMENT 4_18JUNE2025.pdf (1.57 MB)

C4671038_PROTOCOL AMENDMENT 3_20NOV2024.pdf (1.58 MB)

Regulatory

Was the study required by a regulatory body?

Yes

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

Not applicable

Methodological aspects

Study type

Study type list

Study topic:

Human medicinal product

Study type:

Non-interventional study

Scope of the study:

Assessment of risk minimisation measure implementation or effectiveness

Study design:

This 5-year observational cohort study will use administrative healthcare claims data to assess PAXLOVID exposure and pregnancy and infant outcomes including SA, induced termination, stillbirth, livebirth, SGA, preterm birth, postnatal growth deficiency, and infant developmental delay and MCM.

Main study objective:

To estimate the risk of MCM among pregnant women exposed to PAXLOVID (and not other COVID-19 treatments) during pregnancy, pregnant women not exposed to PAXLOVID but exposed to other COVID-19 treatments, and pregnant women with COVID-19 not exposed to any COVID-19 treatments.

Study Design

Non-interventional study design

Cohort

Study drug and medical condition

Medicinal product name

PAXLOVID

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

NIRMATRELVIR

RITONAVIR

Anatomical Therapeutic Chemical (ATC) code

(J05AE30) nirmatrelvir and ritonavir

nirmatrelvir and ritonavir

Medical condition to be studied

Abortion spontaneous

Stillbirth

Live birth

Congenital anomaly

Small for dates baby

Additional medical condition(s)

Induced termination of pregnancy, preterm birth

Population studied

Short description of the study population

The base population for this study will include pregnancies among women that began (based on the estimated conception date [ECD], equal to the date of last menstrual period [LMP] + 14 days) between 01 March 2021 and 01 December 2025.

For the assessment of infant outcomes, pregnancies that begin on or before 01 April 2025 will be eligible for inclusion.

Additional qualifying and cohort criteria are outlined in the study protocol.

Age groups

- Adolescents (12 to < 18 years)
- Adults (18 to < 46 years)
- Adults (46 to < 65 years)

Special population of interest

Pregnant women

Study design details

Setting

The base population for this study will include pregnancies that began (based on ECD) between 01 March 2021 and 01 December 2025, among women treated for COVID-19 or with a COVID-19 diagnosis.

Outcomes

Risk of MCM among pregnant women exposed to PAXLOVID only during pregnancy (Cohort 1), among pregnant women not exposed to PAXLOVID but exposed to other COVID-19 treatments (Cohort 2), and pregnant women with COVID-19 not exposed to any COVID-19 treatments (Cohort 3). Risk of spontaneous abortion, induced termination, stillbirth, live birth, preterm birth, and small for gestational age among the 3 study cohorts.
Pending sufficient sample size, comparison of the risk of pregnancy and infant outcomes in Cohort 1 compared to, separately, Cohort 2 and Cohort 3.

Data analysis plan

Descriptive summaries of baseline variables and prevalence of pregnancy and infant outcomes will be prepared for pregnancies in each cohort and exposure window.
Adjudication results will be described including the number of medical records sought and retrieved. Pending sufficient sample size, comparative analyses will

be undertaken for each of the pregnancy and infant outcomes, comparing the PAXLOVID-exposed pregnancy cohorts to the comparator pregnancy cohorts. Propensity scores will be developed and used to account for potential covariate imbalance between the study cohorts via inverse probability of treatment weighted (IPTW) regression. Sensitivity analyses will assess alternate exposure definitions and/or quantify the potential bias associated with unmeasured confounders or the occurrence of major congenital malformation leading to pregnancy loss.

Documents

Study, other information

C4671038_PROTOCOL_V1_02NOV2023.pdf (1.21 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), other

Optum Research Database United States

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