Real World Impact and Effectiveness of ABRYSVO Vaccination During Pregnancy Against RSV Illness in Infants (BERNI)

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Study Ongoing

Administrative details

EU PAS number

EUPAS1000000224

Study ID

1000000224

DARWIN EU® study

No

Study countries

Argentina

Uruguay

Study description

This study will be conducted in collaboration with a research network comprised of independent hospital sites across Argentina and Uruguay to evaluate the vaccine effectiveness (VE) and impact of ABRYSVO vaccination during pregnancy in a real-world population over multiple seasons, beginning in 2024 in Argentina and beginning in 2025 in Uruguay. We will use three retrospective design approaches in this study:
(i) a test negative design (TND) to evaluate real-world VE of maternal ABRYSVO against RSV-associated outcomes in infants;
(ii) a descriptive cohort design to evaluate the clinical evolution of infants hospitalized with RSV-positive lower respiratory tract disease (LRTD) by maternal ABRYSVO status; and
(iii) an ecologic before-and-after design to evaluate the population-level impact of ABRYSVO vaccination during pregnancy on infant RSV-associated and all-cause respiratory outcomes.

Study status
Ongoing

Research institutions and networks

Institutions

iTRIALS

Networks

iTRIALS

Contact details

Study institution contact

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Study contact

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Primary lead investigator

Gonzalo Perez Marc

Primary lead investigator

Study timelines

Date when funding contract was signed

Planned: 12/07/2024

Actual: 25/07/2024

Study start date

Planned: 12/08/2024

Actual: 26/08/2024

Date of final study report

Planned: 15/04/2028

Sources of funding

- Pharmaceutical company and other private sector

Regulatory

Was the study required by a regulatory body?

No

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

Not applicable

Other study registration identification numbers and links

C3671068

Methodological aspects

Study type

Study type list

Study topic, other:

Vaccine effectiveness

Study type:

Non-interventional study

Scope of the study:

Effectiveness study (incl. comparative)

Data collection methods:

Secondary use of data

Study design:

Three design approaches will be used in this study:

(i) retrospective test negative design (TND)

(ii) retrospective descriptive cohort design

(iii) retrospective ecologic before-and-after design

Main study objective:

The primary objective of the TND study is to estimate ABRYSVO VE against RSV-associated LRTD hospitalization among infants from birth through 6 months of age.

Secondary and exploratory objectives of the TND study include (but are not limited to) estimating ABRYSVO VE against the primary outcome according to timing of vaccination and timing of vaccine co-administration (simultaneous or sequential), estimating ABRYSVO VE against the primary outcome according to subtype (RSV-A/RSV-B), estimating ABRYSVO VE against RSV-associated severe LRTD hospitalization among infants from birth through 6 months of age, evaluating duration of protection and interval-specific vaccine effectiveness against RSV-associated LRTD hospitalization, and evaluating RSV-associated community acquired pneumonia hospitalization.

The exploratory objectives of the descriptive cohort study are to describe the infant characteristics, timing, and severity/clinical features of infants who develop severe hospitalized LRTD or who die in hospital, and to describe use of healthcare resources during the index RSV hospitalization.

The exploratory objectives of the ecologic study are to estimate the impact of ABRYSVO introduction by evaluating the number and rate of RSV-associated and all-cause respiratory outcomes (i.e., LRTD hospitalization, LRTD critical care hospitalization, LRTD in-hospital death) before and after ABRYSVO introduction

both descriptively and using quasi-experimental approaches.

Study Design

Non-interventional study design

Cohort

Ecological

Other

Non-interventional study design, other

Test-negative design

Study drug and medical condition

Medicinal product name

ABRYSVO

Medicinal product name, other

Respiratory syncytial virus vaccine (bivalent, recombinant)

Anatomical Therapeutic Chemical (ATC) code

(J07BX05) respiratory syncytial virus vaccines

respiratory syncytial virus vaccines

Medical condition to be studied

Respiratory syncytial virus infection

Population studied

Short description of the study population

The TND study will include all infants through 9 months of age who were born at 32 weeks of gestational age or greater and born 14 days or more after start of the first seasonal ABRYSVO vaccination campaign, born to an individual who were expected to reach the indicated ABRYSVO vaccination window during a local ABRYSVO vaccination season, admitted to one of the participating hospital sites with symptoms of respiratory infection, met the definition of LRTD, and had a respiratory specimen collected within 10 days prior to hospital admission through 3 days after a hospital admission with an RSV test result through standard of care testing.

To complement the VE estimates generated in the TND study, we will use the cases from the primary objective of the TND study as a cohort of participants to describe the endpoints in the descriptive cohort study.

The ecologic before-and-after study will include information for all children <= 24 months of age meeting eligibility criteria in post-ABRYSVO program implementation years (2024, 2025, 2026, and 2027 in Argentina; 2025, 2026, and 2027 in Uruguay) and in five historical RSV seasons pre-ABRYSVO program implementation (2016 through 2019, as well as the 2023 season for Argentina; 2017 through 2019, as well as 2023 and 2024 seasons for Uruguay.

Age groups

- Neonate
  - Preterm newborn infants (0 – 27 days)
  - Term newborn infants (0 – 27 days)
- Infants and toddlers (28 days – 23 months)

Special population of interest

Pregnant women

Special population of interest, other

Pregnant individuals who have received ABRYSVO vaccination

Estimated number of subjects

2.000

Study design details

Setting

This hospital-based retrospective study will be conducted within a research network of comprised of independent hospital sites across Argentina and Uruguay, coordinated by the iTRIALS study team. Each participating hospital site conducts standard of care respiratory viral testing during the RSV season, using polymerase chain reaction (PCR) and/or indirect immunofluorescence (IIF) techniques. For critical respiratory illness (e.g., requiring admission to neonatal intensive care unit [NICU]/pediatric intensive care unit [PICU]; illness resulting in death), PCR testing is used by all sites to determine viral etiology. The study will use data collected during routine standard of care clinical encounters available in medical records, the national surveillance systems (SNVS 2.0 in Argentina and the Sistema Integrado de Vigilancia in Uruguay) and supplemented with information from the official national vaccine registry (NOMIVAC in Argentina and Sistema Informatico de Vacunas in Uruguay) for maternal ABRYSVO vaccination status.

Outcomes

The primary outcome of the TND study is RSV-associated LRTD hospitalization among infants occurring <=180 days after birth.

Other outcomes of the TND study include (but are not limited to) RSV-associated severe LRTD hospitalization among infants occurring <=180 days after birth, RSV-associated LRTD hospitalization among infants occurring <=180 days after birth by gestational age at ABRYSVO vaccination, by time from ABRYSVO vaccination to birth, by simultaneous or sequential administration with none or >=1 other vaccine, by subtype (RSV-A/RSV-B), by ABRYSVO vaccination status in a previous pregnancy, by breastfeeding status, by infant high-risk status, and by RSV-associated in-hospital death. An additional exploratory outcome will assess RSV-associated community acquired pneumonia hospitalization.

The outcomes that will be evaluated in the descriptive cohort study of infants <=270 days of age hospitalized with RSV-associated LRTD include severe LRTD hospitalization, in-hospital death, and use of healthcare resources.

The outcomes of the ecologic study include RSV-associated and all-cause respiratory outcomes (i.e., LRTD hospitalization, LRTD critical care hospitalization, LRTD in-hospital death).

Data analysis plan

For the TND study, a logistic regression model will be used to compute an odds ratio (OR), comparing the odds of maternal ABRYSVO vaccination during pregnancy between test-positive cases and test-negative controls. From the OR, the VE will be calculated as (1 - OR) x 100%. A multivariable logistic regression model will be used to compute an adjusted OR (aOR) from which we will derive final VE estimates, adjusted for potential confounding, according to the formula: VE = (1 - aOR) x 100%. In secondary and exploratory objectives, VE estimates

for the primary outcome will be stratified by several characteristics.

For the descriptive cohort study, infant characteristics, timing, severity/clinical features, and use of healthcare resources during the index hospitalization will be described overall and stratified according to maternal ABRYSVO status. Among infants born to individuals who received ABRYSVO vaccine during pregnancy (i.e., breakthrough cases), we will describe the gestational age at ABRYSVO vaccination and the time interval from vaccination to birth.

For the ecologic before-and-after study, the impact of maternal ABRYSVO introduction on rates of study outcomes among infants <=6 months over multiple RSV seasons will be described over time and by infant age group and hospital site. All analyses will be conducted using data from Argentina and Uruguay separately, beginning in the 2024 RSV season in Argentina and in the 2025 RSV season in Uruguay and continuing in future RSV seasons with comparison to several pre-ABRYSVO implementation seasons.

Quasi-experimental approaches (interrupted time series analyses and difference-in-differences analyses) will be conducted to further quantify the impact. We will also evaluate study outcomes in older pediatric age groups as well as include several negative control outcomes to contextualize the findings in the post-ABRYSVO time period.

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

-Official national vaccine registry (Registro Federal de Vacunación) in Argentina: Nominalizado [NOMIVAC])

-Nominal vaccination registry in Uruguay: Sistema Informático de Vacunas (SIV)

-National Surveillance System in Argentina: SNVS 2.0

-National Surveillance System in Urugay: Sistema Integrado de Vigilancia

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Data sources (types)

Electronic healthcare records (EHR)

Laboratory tests and analyses

Other

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

Unknown