ADVANCE POC I Benefit-Risk pillar – testing new approaches to monitoring benefit/risk with pertussis vaccines as test case: benefit-risk analysis of pertussis vaccines in pre-school children comparing whole-cell and acellular formulations in the post-marketing setting

First published: 06/07/2016

Last updated: 02/07/2024

Study Finalised

Administrative details

EU PAS number

EUPAS13978

Study ID

31237

DARWIN EU® study

No

Study countries

Denmark

Italy

Spain

United Kingdom

Study description

The overall ADVANCE proof-of-concept (POC) question is to test the system for benefit-risk monitoring of vaccines in Europe. This will first be done by using test cases. For this POC, the following research question is used: “Has the initial benefit-risk profile in children prior to school-entry booster been maintained after the switch from whole-cell pertussis vaccines to acellular pertussis vaccines?”The objectives of this specific benefit-risk modelling exercise, which focuses on testing methods for benefit-risk analysis with pertussis vaccines as test case, are the following:1. To analyze the benefit-risk balance of pertussis-containing vaccines in children comparing wP and aP formulations at the time of the switch from wP to aP adopting a public health perspective (historical benefit-risk)2. To investigate the impact of (1) statistical uncertainty in benefit and risk estimates as obtained from the literature, clinical trials, observational databases (uncertainty analyses), (2) differences in preferences and (3) subjective model choices (scenario analyses).3. To identify the benefit and risk criteria that would most likely modify the benefit-risk balance in case they would change over time (i.e. the pivotal parameters).4. To assess the feasibility of (retrospectively) monitoring the benefit-risk balance of pertussis-containing vaccines over time (this to mimic prospective monitoring)5. To re-analyze the benefit-risk balance of pertussis-containing vaccines in children comparing wP and aP formulations from a public health perspective using all currently available evidence (current assessment).

Study status

Finalised

Research institutions and networks

Institutions

P95 Clinical and Epidemiology Services

- Belgium
- Colombia
- Netherlands
- South Africa
- Thailand
- United States

First published: 07/11/2022

Last updated: 21/02/2025

Institution | **Laboratory/Research/Testing facility** | **Non-Pharmaceutical company** | **ENCePP partner**

Networks

Accelerated development of vaccine benefit-risk collaboration in Europe (ADVANCE)

First published: 01/02/2024

Last updated: 01/02/2024

Network

Contact details

Study institution contact

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Study contact

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Primary lead investigator

Kaat Bollaerts

Primary lead investigator

Study timelines

Date when funding contract was signed

Planned: 01/10/2013

Actual: 01/10/2013

Study start date

Planned: 01/06/2016

Actual: 01/06/2016

Data analysis start date

Planned: 01/09/2016

Actual: 01/09/2016

Date of interim report, if expected

Actual: 30/04/2017

Date of final study report

Planned: 01/02/2017

Actual: 30/07/2017

Sources of funding

- EU institutional research programme

More details on funding

IMI

Study protocol

ADVANCE_POCI_BRprotocol.pdf (1.38 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:

Other

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

Benefit-risk modeling

Data collection methods:

Secondary use of data

Main study objective:

1.Analyze the benefit-risk of pertussis vaccines in children comparing wP and aP at the time of switch from wP to aP (historical)2.Investigate the impact of uncertainty in benefits, risks and preferences3.Identify the criteria that most likely modify the benefit-risk4.Assess the feasibility of monitoring benefit-risk over time5.Re-analyze the benefit-risk using currently available evidence

Study Design

Non-interventional study design

Other

Non-interventional study design, other

Cohort state transition model, Multi-criteria decision analysis (MCDA)

Study drug and medical condition

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

PERTUSSIS VACCINE

Medical condition to be studied

Injection related reaction

Somnolence

Crying

Convulsion in childhood

Lip swelling

Pertussis

Population studied

Short description of the study population

Children from birth until their school-entry pertussis booster if any (4th or 5th dose) within all eligible ADVANCE databases.

Age groups

- Infants and toddlers (28 days – 23 months)
- Children (2 to < 12 years)

Estimated number of subjects

1

Study design details

Outcomes

Exposure of interest: any whole-cell and acellular pertussis-containing vaccines and their doses in the vaccine scheduleOutcomes:Injection site reactions, fever, somnolence, persistent crying, generalized convulsive seizures, HHE, extensive limb swelling, pertussis, pertussis related death

Data analysis plan

The benefit-risk assessments will be carried out following the Multi-Criteria Decision Analyses (MCDA) methodology. MCDA is a quantitative methodology for appraising alternatives on individual, often conflicting criteria and combining them into one overall appraisal, through incorporating elicited preferences (weights). The preferences will be elicited using MCDA-swing weighting. In addition, several sensitivity analyses will be conducted to investigate the impact of uncertainty in the benefits, risks and preference estimations on the overall benefit-risk balance. A state transition model will be build to generate the effects table, which will be used for the MCDA swing weighting.

Documents

Study results

D5.6_ExecSummaryEU-PAS.pdf (1.07 MB)

D5.7_ADVANCEPOC12_reportv1.11_reviewed.pdf (1.79 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 sources (types)

Electronic healthcare records (EHR)

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