Veterinary Medicines Directorate

United Kingdom
Veterinary Medicines Directorate
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NATIONAL PROCEDURE

PUBLICLY AVAILABLE ASSESSMENT REPORT FOR A VETERINARY MEDICINAL PRODUCT

Innovax-ND-H5 Concentrate and Solvent for Suspension for Injection for Chickens

Date Created: September 2025

MODULE 1

PRODUCT SUMMARY

Name, strength and pharmaceutical form	Innovax-ND-H5 Concentrate and Solvent for Suspension for Injection for Chickens, Solvent for suspension for injection
Applicant	MSD Animal Health UK Limited, Walton Manor, Walton, Milton Keynes, MK7 7AJ
Active substance(s)	Turkey herpesvirus
ATC Vetcode	QI01AD
Target species	Chicken embryonated eggs Chickens
Indication for use	For active immunisation of one-day-old chicks or 18–19 day-old embryonated chicken eggs: - to reduce mortality, clinical signs and lesions caused by Marek's disease (MD) virus; - to reduce mortality and clinical signs caused by Newcastle disease (ND) virus; - to reduce mortality, clinical signs and virus excretion due to infection with highly pathogenic avian influenza (HPAI) virus of the H5 type. Onset of immunity: MD 5 days, ND 4 weeks, and AI H5 2 weeks. Duration of immunity: MD lifelong, ND and HPAI – 12 weeks.

MODULE 2

The Summary of Product Characteristics (SPC) for this product is available on the Product Information Database of the Veterinary Medicines Directorate.

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MODULE 3

PUBLIC ASSESSMENT REPORT

Legal basis of original application	National Exceptional (Provisional) Marketing Authorisation (PMA) in accordance with Article 8 of Veterinary Medicine Regulations (VMRs) 2013 (Schedule 1, Para 26) as amended.
Date of conclusion of the procedure	26/06/2025

I. SCIENTIFIC OVERVIEW

This is a GB National Exceptional (Provisional) Marketing Authorisation (PMA) for the vaccine Innovax-ND-H5 Concentrate and Solvent for Suspension for Injection for Chickens.

Innovax-ND-H5 is a live vaccine intended for the vaccination of chickens against Marek's disease (MD), Newcastle disease (ND) and avian infectious influenza subtype H5 (H5).

The vaccine is intended for the active immunisation of chickens to reduce mortality, clinical signs and lesions caused by Marek's disease (MD) virus; to reduce mortality and clinical signs caused by Newcastle disease (ND) virus; and to reduce mortality, clinical signs, and virus excretion due to infection with highly pathogenic avian influenza (HPAI) virus of the H5 sub-type.

Each dose, administered via subcutaneous (0.05 ml) or *in-ovo* administration (0.2 ml), contains between 103.3 and 104.6 plaque forming units (PFU) of cell-associated live turkey herpesvirus, strain HVT-ND-H5, expressing a fusion protein from the F gene of NDV (Newcastle disease virus) and HA gene of AIV subtype H5

The product is classified as POM-V, a veterinary medicinal product subject to prescription.

The product is produced and controlled using validated methods and tests which ensure the consistency of the product released on the market. It has been shown that the product can be safely used in the target species, any reactions observed are indicated in the SPC[1]. The product is safe for the user, the consumer of foodstuffs from treated animals and for the environment, when used as recommended. Suitable warnings and precautions are indicated in the SPC. The efficacy[2] of the product was demonstrated according to the claims made in the SPC. The overall benefit/risk analysis is in favour of granting a marketing authorisation.

[1] SPC – Summary of product Characteristics.
[2] Efficacy – The production of a desired or intended result.

II. QUALITATIVE AND QUANTITATIVE PARTICULARS OF THE CONSTITUENTS

II.A. Composition

The product contains Live Herpesvirus of turkey strain HVT/ND/H5 and the excipients Bovine serum, Mimethyl sulfoxide and Veggie medium.

The container/closure system consists of a hydrolytic resistant Type 1 glass ampoule. The particulars of the containers and controls performed are provided and conform to the regulation.

The choice of the absence of preservative is justified.

The product is an established pharmaceutical form and its development is adequately described in accordance with the relevant regulatory guidelines.

II.B. Method of Preparation of the Product

The product is manufactured fully in accordance with the principles of good manufacturing practice from a licensed manufacturing site. The manufacturing method consists of propagation, harvesting, creating the formulation and filling.

Process validation data on the product have been presented in accordance with the relevant regulatory guidelines.

II.C. Control of Starting Materials

The active substance is live Herpesvirus of turkey strain HVT/ND/H5, a novel active substance. The active substance is manufactured in accordance with the principles of good manufacturing practice.

Starting materials of non-biological origin, that are listed in a pharmacopeia, comply with the relevant monographs and are provided with the appropriate Certificates of Analysis.

Biological starting materials used are in compliance with the relevant Ph. Eur. Monographs and guidelines and are appropriately screened for the absence of extraneous agents according to the Ph. Eur Guidelines and any deviation was adequately justified.

The master and working seeds have been produced according to the Seed Lot System as described in the relevant guideline.

II.C.4. Substances of Biological Origin

Scientific data and/or certificates of suitability issued by the EDQM have been provided and compliance with the Note for Guidance on Minimising the Risk of Transmitting Animal Spongiform Encephalopathy Agents via Human and Veterinary Medicinal Products has been satisfactorily demonstrated.

II.D. Control Tests Carried Out at Intermediate Stages of the Manufacturing Process

The tests performed during production are described and acceptable for the legal basis of the application.

II.E. Control Tests on the Finished Product

The tests performed on the final product conform to the relevant requirements; any deviation from these requirements is justified. The tests are identity, virus titration, sterility and mycoplasma contamination.

The demonstration of the batch to batch consistency is based on the results of three pilot batches and one commercial scale batch produced according to the method described in the dossier. The batches represented the 2000 dose (three batches) and 4000 dose (one batch) presentations of Innovax-ND-H5.

Other supportive data provided confirm the consistency of the production process.

II.F. Stability

The active substance is fully tested to ensure compliance with its specification immediately prior to its use in manufacture of the product.

Stability data on the finished product have been provided in accordance with applicable regulatory guidelines, demonstrating the stability of the product throughout its shelf life when stored under the approved conditions.

The in-use shelf-life of the reconstituted vaccine is supported by the data on an authorised related vaccine, which can be accepted due to the legal basis of this application.

G. Other Information

Shelf life of the veterinary medicinal product as packaged for sale: 3 years.
Shelf life of the solvent (multilayer plastic bags) as packaged for sale: 3 years.
Shelf life after reconstitution according to directions: 2 hours.

Concentrate:
Store and transport frozen in liquid nitrogen (below -140 °C).

Solvent:
Store below 30 °C.

Container:
Store liquid nitrogen container securely in an upright position in a clean, dry and well-ventilated room separated from the hatching/chicken room.

III. SAFETY ASSESSMENT

Laboratory trials

The safety of the administration of an overdose was demonstrated in a study using a 10-fold overdose. The investigation was performed according to the recommendations of Directive 2001/82/EC as amended and the relevant guidelines Ph. Eur.

In this study, eggs were vaccinated by the *in-ovo* route with 10x overdose of Innovax-ND-H5 or a combination of Innovax-ND-H5 and Nobilis Rismavac and a group which were not vaccinated were used as a control. Once the birds were hatched they were observed for 123 days for general performance and clinical signs of disease. They were then euthanised, necropsied and examined for macroscopic lesions related to Marek's disease.

The conclusion of this overdose study showed the administration of a 10x overdose of Innovax-ND-H5 vaccine, via the subcutaneous route, to one day old Specific Pathogen Free (SPF) chickens or via the *in-ovo* route to embryonated eggs is safe. Furthermore, it is considered safe to administer Innovax-ND-H5 with Nobilis Rismavac simultaneously.

Field studies

No specific field studies were performed to examine the safety of Innovax-ND-H5.

Ecotoxicity

The applicant provided a Phase 1 environmental risk assessment in compliance with the relevant guideline which showed that no further assessment is required. The assessment concluded that the level of risk to the environment for Innovax-ND-H5 can be considered as effectively zero. It is not expected that Innovax-ND-H5 would present any additional risk over and above that of the parent strain which is a naturally occurring apathogenic HVT strain. No warnings regarding are therefore required.

Warnings and precautions as listed on the product literature are adequate to ensure safety to the environment when the product is used as directed.

IV. CLINICAL ASSESSMENT (EFFICACY)

Clinical Studies

Laboratory Trials

No specific studies have been provided investigating efficacy of Innovax-ND-H5 against virulent MDV challenge. The Innovax range which contain the same HVT FC-126 vector backbone have been shown to provide significant protection against MDV challenge in chickens, achieving the Ph. Eur. 0589 requirement of relative protection percentage (RPP) of >80% for both subcutaneous and/or *in-ovo* routes of administration based on the previously submitted/assessed efficacy studies. There is no reason that Innovax-ND-H5, which contains the H5 gene insert, would have different efficacy against MDV than the other vaccines.

Onset of Immunity

An onset of immunity study was conducted where chickens vaccinated by the *in-ovo* route, either with Innovax-ND-IBD-ILT ($10^{3.0}$ PFU/dose) or by the *in-ovo* and subcutaneous routes with Innovax-ND-H5 ($10^{3.2}$ PFU/dose) alone or mixed with Nobilis Rismavac ($10^{3.0}$ PFU/dose), were challenged with velogenic NDV strain Herts 33/56. They were monitored for 14 days for clinical signs of Newcastle disease or death. The results of this study obtained from birds vaccinated with Innovax-ND-H5 demonstrated an onset of immunity against NDV for both subcutaneous and *in-ovo* routes to be 4 weeks.

Onset of immunity studies for HPAI were conducted where chickens were administered Innovax-ND-H5 subcutaneously and then challenged with different strains of HPAI. The chickens were observed for 3 weeks for mortality, clinical signs and virus excretion. It was concluded from all 3 studies that the onset of immunity for HPAI is 2 weeks post vaccination.

Duration of Immunity

Duration of immunity for MDV is considered to be lifelong as HVT causes a persistent infection in chickens and therefore protection against Marek's Disease by HVT is generally accepted to be lifelong. This approach was also accepted previously for Innovax-ILT, Innovax-ND-IBD, Innovax-ND-ILT and Innovax-ILT-IBD.

Four duration of immunity studies were conducted to demonstrate the duration of immunity for NDV. The studies were designed in line with Ph. Eur. 0450, Newcastle disease vaccine (Live) section 2-4-5 Immunogenicity. Sixty chickens were grouped and either vaccinated with Innovax-ND-IBD-ILT or Innovax-ND-H5 vaccines in combination with Nobilis Rismavac, by the subcutaneous route at the minimum titres. One group was not vaccinated and served as a control. At twelve weeks post vaccination, birds from each group were challenged with NDV strain Herts 33/56. The chickens were monitored for 14 days after challenge for clinical signs of disease or death. Birds vaccinated with Innovax-ND-IBD-ILT or Innovax-ND-H5 (both mixed with Nobilis Rismavac) showed significant protection against the NDV challenge at 95% and 100% respectively, demonstrating a DOI of 12 weeks.

One duration of immunity study was conducted for HPAI. Innovax-ND-H5 was vaccinated *in-ovo* in SPF layers. Thirty-one 19 day-old embryonated SPF eggs were vaccinated with Innovax-ND-H5. At one-day of age, the chicks that met the inclusion criteria were assigned to group 1 (23 birds in total). On the same day, 13 healthy one-day old SPF chickens were assigned to group 2 and remained unvaccinated to serve as challenge controls. At 12 weeks of age, a total of 20 vaccinated and 10 challenge controls in groups 1 and 2, respectively, were challenged and monitored for the development of clinical signs of disease for 10 days post-challenge. The vaccinated group showed 80% protection against challenge with HPAI H5N1 virus. The results support a duration of immunity of 12 weeks for HPAI post vaccination by the *in-ovo* route.

Field Trials

No field studies were performed by the applicant, which is appropriate due to the legal basis of the application

V OVERALL CONCLUSION AND BENEFIT– RISK ASSESSMENT

The data submitted in the dossier demonstrate that when the product is used in accordance with the Summary of Product Characteristics, the benefit/risk profile of the product is favourable.

MODULE 4

POST- AUTHORISATION ASSESSMENTS

The SPC and package leaflet may be updated to include new information on the quality, safety and efficacy of the veterinary medicinal product. The current SPC is available on the Product Information Database of the Veterinary Medicines Directorate website.

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The post-authorisation assessment (PAA) contains information on significant changes which have been made after the original procedure which are important for the quality, safety or efficacy of the product.

The PAA for this product is available on the Product Information Database of the Veterinary Medicines Directorate website.

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