Summary of risk management plan for Gardasil 9 (Human Papillomavirus 9-valent Vaccine, Recombinant or 9vHPV vaccine)

This is a summary of the risk management plan (RMP) for 9vHPV vaccine. The RMP details important risks of 9vHPV vaccine, how these risks can be minimised, and how more information will be obtained about 9vHPV vaccine's risks and uncertainties (missing information).

9vHPV vaccine's summary of product characteristics (SmPC) and its package leaflet give essential information to healthcare professionals and patients on how 9vHPV vaccine should be used.

This summary of the RMP for 9vHPV vaccine should be read in the context of all this information including the assessment report of the evaluation and its plain-language summary, all which is part of the European Public Assessment Report (EPAR).

Important new concerns or changes to the current ones will be included in updates of 9vHPV vaccine's RMP.

II. The Medicine and What it is Used For

9vHPV vaccine is authorised for active immunisation of individuals from the age of 9 years against the following HPV diseases:

– Premalignant lesions and cancers affecting the cervix, vulva, vagina and anus caused by vaccine HPV types

– Genital warts (Condyloma acuminata) caused by specific HPV types (see SmPC for the full indication). It contains Human Papillomavirus 9-valent Vaccine, Recombinant as the active substance and it is given by intramuscular injection.

Further information about the evaluation of 9vHPV vaccine’s benefits can be found in Human Papillomavirus 9-valent Vaccine, Recombinant’s EPAR, including in its plain-language summary, available on the EMA website, under the medicine’s webpage:


II. Risks Associated With the Medicine and Activities to Minimise or Further Characterise the Risks

Important risks of 9vHPV vaccine, together with measures to minimise such risks and the proposed studies for learning more about 9vHPV vaccine's risks, are outlined below.
Measures to minimise the risks identified for medicinal products can be:

- Specific information, such as warnings, precautions, and advice on correct use, in the package leaflet and SmPC addressed to patients and healthcare professionals;
- Important advice on the medicine’s packaging;
- The authorised pack size — the amount of medicine in a pack is chosen so to ensure that the medicine is used correctly;
- The medicine’s legal status — the way a medicine is supplied to the patient (e.g. with or without prescription) can help to minimise its risks.

Together, these measures constitute routine risk minimisation measures.

In addition to these measures, information about adverse reactions is collected continuously and regularly analysed, including PSUR assessment - so that immediate action can be taken as necessary. These measures constitute routine pharmacovigilance activities.

If important information that may affect the safe use of 9vHPV vaccine is not yet available, it is listed under ‘missing information’ below.

II.A List of Important Risks and Missing Information

Important risks of 9vHPV vaccine are risks that need special risk management activities to further investigate or minimise the risk, so that the medicinal product can be safely administered. Important risks can be regarded as identified or potential. Identified risks are concerns for which there is sufficient proof of a link with the use of 9vHPV vaccine. Potential risks are concerns for which an association with the use of this medicine is possible based on available data, but this association has not been established yet and needs further evaluation. Missing information refers to information on the safety of the medicinal product that is currently missing and needs to be collected (e.g. on the long-term use of the medicine).

Based on scientific information to date and the latest guidance on Risk Management Planning from the EMA, the Important Identified and Potential Risks have been removed:

- Analysis of the post-marketing data gathered on 9vHPV vaccine over the past 4 years shows that there are no outstanding additional pharmacovigilance activities to address the previous identified and potential risks listed in the RMP.
- The risks are fully characterized and appropriately managed through labelling.
- There is no reasonable expectation that any pharmacovigilance activity can further characterize the previously listed Important identified and potential risks.

For Missing Information, the MAH is retaining the safety issues listed in the table below, given that there are ongoing pharmacovigilance activities that could further characterize the safety profile of the product with respect to the areas of missing information.
Table II.A.1: List of Important Risks and Missing Information

<table>
<thead>
<tr>
<th>List of Important Risks and Missing Information</th>
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<tbody>
<tr>
<td>Important identified risks</td>
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<tr>
<td>Important potential risks</td>
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<tr>
<td>Missing information</td>
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II.B Summary of Important Risks

Table II.B.1: Missing Information: Exposure to Vaccine During Pregnancy

<table>
<thead>
<tr>
<th>Risk minimisation measures</th>
<th>Routine risk minimisation measures</th>
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<tr>
<td></td>
<td>See section 4.6 of the SmPC</td>
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Additional pharmacovigilance activities:
Pregnancy Registry for Gardasil®9 (Human Papillomavirus 9-Valent Vaccine, Recombinant)

Table II.B.2: Missing Information: Long Term Effectiveness and Immunogenicity

<table>
<thead>
<tr>
<th>Risk minimisation measures</th>
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<tr>
<td></td>
<td>See section 5.1 of the SmPC</td>
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Additional pharmacovigilance activities:
V503-021: Nordic Long-Term Follow-Up Study (10-year extension in subjects from V503-001)
V503-002-20: Adolescent Long-term Follow-Up Study (10-Year Post-dose 3 Extension)

II.C Post-Authorisation Development Plan

II.C.1 Studies Which are Conditions of the Marketing Authorisation

There are no studies which are conditions of the marketing authorisation or specific obligation of 9vHPV vaccine.
II.C.2 Other Studies in Post-Authorisation Development Plan

1. **Study Short Name and Title:** Pregnancy Registry for Gardasil®9 (Human Papillomavirus 9-Valent Vaccine, Recombinant)

**Purpose of the Study:**

**Rationale and Study Objectives:**

The Pregnancy Registry is being conducted since the use of Gardasil®9 was not specifically studied in clinical trials. Based on the fact that the population for which this vaccine is indicated includes young women of childbearing potential, it is very likely that there will be inadvertent maternal exposure to the vaccine during pregnancy. Therefore, this is considered important missing information that requires further characterization.

The goal of the Merck Pregnancy Registry for GARDASIL®9 is to acquire and analyze information on exposures and pregnancy outcomes (livebirths, spontaneous abortions, elective abortions, fetal deaths, congenital anomalies, and adverse maternal or fetal experiences) to better describe the safety profile of pregnancy exposures to 9vHPV vaccine. The primary purpose is to detect safety signals of important pregnancy-related adverse effects if they occur, including adverse effects on the fetus or newborn. Other important goals are to provide patients and health care providers with accurate information with which they can make informed decisions and avoid the consequences of inadequate information such as the termination of wanted pregnancies due to unwarranted fear of teratogenic potential.

2. **Study Short Name and Title:** V503-021: Nordic Long-Term Follow-Up Study (10-year extension in subjects from V503-001)

A Registry-Based Extension of Protocol V503-001 in Countries with Centralized Cervical Cancer Screening Infrastructures to Evaluate the Long-Term Effectiveness, Immunogenicity, and Safety of Multivalent Human Papillomavirus (HPV) L1 Virus-Like Particle (VLP) Vaccine as Administered to 16- to 26-Year-Old Women.

**Purpose of the Study:**

**Rationale and Study Objectives:**

Protocol V503-021 is a long-term follow-up study extension of the V503-001 base study in the Scandinavian countries of Denmark, Norway and Sweden to evaluate the safety, immunogenicity, and long-term effectiveness of 9vHPV vaccine in preventing cervical, vulvar, and vaginal cancers and related precancers caused by the vaccine HPV types (6, 11, 16, 18, 31, 33, 45, 52, and 58). Safety and effectiveness are assessed using information from national health registries of the Scandinavian countries. The subjects entered the V503-021 study extension after they completed the V503-001 base study. Each subject will be followed for approximately 10 years in the V503-021 study extension. No vaccination will be administered during this study.
The objectives of the study address important missing information for long-term effectiveness/Immunogenicity.

Primary Objective: To assess the long-term effectiveness of the 9vHPV vaccine by monitoring the combined incidence of Cervical Intraepithelial Neoplasia (CIN) 2, CIN 3, Adenocarcinoma In Situ (AIS) and cervical cancer related to HPV 16, 18, 31, 33, 45, 52, and 58 in women from Protocol V503-001 in the Nordic region vaccinated with the 9vHPV vaccine.

3. **Study Short Name and Title:** V503-002-20: Adolescent Long-term Follow-Up Study (10-Year Post-dose 3 Extension)

A Phase III Clinical Trial to Study the Immunogenicity, Tolerability, and Manufacturing Consistency of V503 (A Multivalent Human Papillomavirus [HPV] L1 Virus-Like Particle [VLP] Vaccine) in Preadolescents and Adolescents (9 to 15-year-olds) with a Comparison to Young Women (16 to 26 year olds)

**Purpose of the Study:**

**Rationale and Study Objectives:**

Protocol V503-002-20 is a long-term follow-up extension of Protocol V503-002. Protocol V503-002-20 will assess long-term immunogenicity, safety, and effectiveness of the 9vHPV vaccine, when administered to 9- to 15-year-old girls and boys through active follow-up of study subjects for up to 10 years post-dose three. No vaccination will be administered during this study extension.

The objectives of the study address important missing information for long-term effectiveness/Immunogenicity.

Primary Objective: To evaluate the anti-HPV 6, 11, 16, 18, 31, 33, 45, 52, and 58 responses generated following administration of a 3-dose regimen of 9vHPV vaccine up to 10 years post-dose 3.

**Other Important Objectives Include:**

1. To estimate the long-term effectiveness of 9vHPV vaccine, when administered to 9- to 15-year-old girls, with respect to the combined incidence of persistent HPV 6, 11, 16, 18, 31, 33, 45, 52, and 58 infection for a duration of 6 months (within ± 1 month windows) or longer and HPV 6, 11, 16, 18, 31, 33, 45, 52, and 58-related Cervical Intraepithelial Neoplasia (CIN), Adenocarcinoma In Situ (AIS), Vulvar Intraepithelial Neoplasia (VIN), Vaginal Intraepithelial Neoplasia (VaIN), genital warts, and cervical/vaginal/vulvar cancer.

2. To estimate the long-term effectiveness of 9vHPV vaccine, when administered to 9- to 15-year-old boys, with respect to the combined incidence of persistent HPV 6, 11, 16, 18, 31, 33, 45, 52, and 58 infection for a duration of 6 months (within ± 1 month windows) or longer and HPV 6, 11, 16, 18, 31, 33, 45, 52, and 58-related Cervical Intraepithelial Neoplasia (CIN), Adenocarcinoma In Situ (AIS), Vulvar Intraepithelial Neoplasia (VIN), Vaginal Intraepithelial Neoplasia (VaIN), genital warts, and cervical/vaginal/vulvar cancer.
windows) or longer and HPV 6, 11, 16, 18, 31, 33, 45, 52, and 58-related Penile Intraepithelial Neoplasia (PIN), genital warts, and penile/perineal/perianal cancer.

3. To describe the incidence of serious adverse experiences (deemed to be vaccine-related or procedure-related) in subjects who received 9vHPV vaccine at 9 to 15 years of age.