Moderna Canada SPIKEVAX Frequently Asked Questions (FAQ) for Healthcare Professionals

Document Outline: Question Topics for Healthcare Professionals

1. General Information
    - Who is Moderna?
2. SPIKEVAX Description
    - What is SPIKEVAX? What is it indicated for?
    - What is the mechanism of action of SPIKEVAX?
    - What are the ingredients in SPIKEVAX?
    - Does SPIKEVAX contain fetal cell lines or were fetal cell lines used in the development of the vaccine?
    - Is SPIKEVAX considered vegan?
    - Is SPIKEVAX halal or kosher certified?
    - Does SPIKEVAX contain any antibiotics, preservatives, or other ingredients of human or animal origin, such as egg or bovine albumin?
    - What is mRNA?
    - How can we use mRNA as a new category of medicine?
    - How does mRNA technology get transformed into a vaccine for COVID-19?
3. Efficacy
    - Is SPIKEVAX effective?
    - Is the vaccine effective against emerging variants of concern?
    - What do I do if a patient only receives 1 dose in the primary series vaccination?
4. Dosing & Administration
    - What is the SPIKEVAX vaccination schedule?
    - When should I administer a SPIKEVAX booster dose?
    - Why is the SPIKEVAX booster dose lower than/half the dose of the primary vaccination series?
    - Will this be an annual COVID-19 vaccine booster shot? Or is this the only one?
    - How many times can the vial stopper be punctured?
    - Can I use the same vial for primary series and booster doses?
5. SPIKEVAX Booster Shot
    - What should I tell patients who are undecided about getting a booster?
    - Which booster dose are individuals able to receive? If someone had 2 doses of the same COVID-19 vaccine brand previously (i.e. during the primary series), does that person need to receive the same brand for a booster shot?
6. Storage & Handling
    - The vaccine was incorrectly handled. Can it still be used?
    - The vaccine appears to be defective or damaged. What can I do?
    - Are there any differences in the requirements for the storage and handling of the primary series vaccine doses vs. the booster vaccine doses?
7. Safety Considerations

- How safe is SPIKEVAX?
- How did SPIKEVAX get approved?
- What are the most common side effects of the SPIKEVAX vaccine?
- Can a woman receive the SPIKEVAX if she's pregnant or breastfeeding?
- What information do you have on reports of myocarditis/pericarditis after vaccination with SPIKEVAX?
- What is known about the safety of the vaccine for special populations (children, pregnant women, elderly people)?
- Are there any known contraindications?
- How do I report adverse events from vaccination?
- Can I administer the vaccine to individuals with a compromised immune system?

8. Drug Interactions
    - Are there any risks with concomitant vaccines?

Section 1: General Information

Q. Who is Moderna?

Answer:
Moderna, Inc. is a biotechnology company founded in 2010 and headquartered in Cambridge, Massachusetts, USA. We believe messenger RNA (mRNA) can be used to create a new category of medicines and vaccines. Every cell in the body uses mRNA to provide instructions to make the proteins that drive many aspects of biology, including human health and disease. That is why we are working to create a class of medicines and vaccines based on mRNA for a wide range of diseases.

Moderna began operations in Canada in 2020, and in 2021 announced a memorandum of understanding with the Government of Canada to build a state-of-the-art mRNA vaccine production facility in Canada. The collaboration aims to provide Canadians with access to a domestically manufactured portfolio of mRNA vaccines against respiratory viruses, including COVID-19, seasonal influenza, respiratory syncytial virus (RSV) and potential other vaccines, pending licensure. The facility is intended to also be activated on an urgent basis to support Canada with direct access to rapid pandemic response capabilities.

If you would like to learn more about Moderna, visit https://www.modernatx.com/about-us.

Section 2: SPIKEVAX Description

Q: What is SPIKEVAX? What is it indicated for?

Answer:
SPIKEVAX is indicated for active immunization against coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus in individuals 6 years of age and older.

Q: What is the mechanism of action of SPIKEVAX?

Answer:
SPIKEVAX causes the body to produce antibodies against the spike protein of SARS-CoV-2, the virus that causes the COVID-19 infection.

After intramuscular injection of SPIKEVAX, cells take up the lipid nanoparticle, effectively delivering the mRNA sequence into cells for expression of the SARS-CoV-2 S antigen. The delivered mRNA does not enter the cellular nucleus or interact with the genome, is nonreplicating, and is expressed transiently.

Based on the mRNA, the cell builds a fully functional Spike protein that is inserted into the cellular membrane of the expressing cell(s). The Spike protein is membrane bound, mimicking the presentation of natural infection. The vaccine induces both neutralizing antibody and cellular immune responses (T-cell and B-cell) to the spike (S) antigen, which may contribute to protection against COVID-19 disease.

Q: What are the ingredients in SPIKEVAX?

Answer:
When reconstituted, SPIKEVAX is a dispersion (0.20 mg/mL) containing the medicinal ingredient elasomeran (mRNA), encoding the pre-fusion stabilized Spike glycoprotein of 2019 novel Coronavirus (SARS-CoV-2).

The non-medicinal ingredients of SPIKEVAX are:
• acetic acid
• cholesterol
• DSPC (1,2-distearoyl-sn-glycero-3-phosphocholine)
• PEG2000-DMG (1,2-dimyristoyl-rac-glycerol,methoxy-polyethyleneglycol)
• lipid SM-102
• sodium acetate trihydrate
• sucrose

• trometamol
• trometamol hydrochloride
• water for injection

Q: Does SPIKEVAX contain fetal cell lines or were fetal cell lines used in the development of the vaccine?

Answer:
SPIKEVAX does not use fetal cell lines during the vaccine manufacturing or lot testing process.

SPIKEVAX does not contain any preservatives, antibiotics, adjuvants, viral components, or materials of human or animal origin.

Q: Is SPIKEVAX considered vegan?

Answer:
SPIKEVAX does not contain materials of human or animal origin; however, it has not been certified as vegan.

Q: Is SPIKEVAX halal or kosher certified?

Answer:
SPIKEVAX does not contain materials of human or animal origin; however, it does not yet carry either a halal or kosher certification.

Q: Does SPIKEVAX contain any antibiotics, preservatives, or other ingredients of human or animal origin, such as egg or bovine albumin?

Answer:
SPIKEVAX does not contain any preservatives, antibiotics, adjuvants, viral components, or materials of human or animal origin.

Q: What is mRNA?

Answer:
Messenger RNA is a molecule that plays an integral role in human biology. Without mRNA, our bodies couldn't perform their everyday functions. mRNA's main job is to instruct our cells how to make proteins.

By harnessing mRNA, we can teach cells to make the proteins we need to help fight disease.

mRNA vaccines do not use the actual virus to create an immune response.

Q: How can we use mRNA as a new category of medicine?

Answer:
For more than 10 years, Moderna has worked to develop the industry's leading mRNA technology platform which has helped fuel the rapid development of SPIKEVAX.

Moderna's approach leverages mRNA's role in protein synthesis, using proprietary technologies to create mRNA sequences that cells recognize as if they were produced in the body. What changes from one potential mRNA medicine to another is the set of instructions that provide the blueprint for the body to build a defense against the virus.

Q: How does mRNA technology get transformed into a vaccine for COVID-19?

Answer:
Moderna used the virus genetic code to create the set of instructions that provide the blueprint for the body to build a defense against the virus. Our COVID-19 vaccine uses a lipid nanoparticle (LNP) system to deliver mRNA that cells use to produce a protein that teaches the immune system to recognize and respond to SARS-CoV-2 the virus that causes COVID-19.

Section 3: Efficacy

Q: Is SPIKEVAX effective?

Answer:
Moderna worked with nearly 100 clinical research sites to enroll a diverse group of people, including those at highest risk for COVID-19. In the COVE clinical trial, two doses of SPIKEVAX showed 94.1% efficacy against COVID-19.

Q: Is the vaccine effective against emerging variants of concern?

Answer:
SPIKEVAX is indicated for active immunization against coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus in individuals 6 years of age and older. There is no indication or authorization for any specific variants of SARS-CoV-2.

Moderna continues to study the effectiveness of its primary series and booster against circulating variants of concern.

Moderna is also conducting ongoing studies on alternative formulations, to explore their effectiveness against emerging variants of concern.

Q: What do I do if a patient only receives 1 dose in the primary series vaccination?

Answer:
SPIKEVAX was designed and studied to be given as a series of two doses 28 days apart. There are no available data on a single dose.

All effort should be made to ensure that all vaccine recipients receive 2 doses. Provide a COVID-19 vaccination card to recipients as documentation of the first dose of SPIKEVAX and to remind them when a second dose should be administered.

Section 4: Dosing & Administration

Q: What is the SPIKEVAX vaccination schedule?

Answer:
SPIKEVAX is administered intramuscularly as a primary series of two doses of 0.5 mL each (100 micrograms of mRNA) 4 weeks apart in individuals 12 years of age and older.

SPIKEVAX is administered intramuscularly as a primary series of two doses of 0.25 mL each (50 micrograms of mRNA) 4 weeks apart in individuals 6 to 11 years of age.

A booster dose of 0.25 mL (50 micrograms of mRNA) may be administered intramuscularly at least 6 months after completion of the primary series in individuals 18 years of age or older.

There are currently no data available from Moderna clinical trials on the interchangeability of SPIKEVAX with other COVID-19 vaccines to complete the primary vaccination series.

Q: When should I administer a SPIKEVAX booster dose?

Answer:
A booster dose of 0.25 mL (50 micrograms mRNA) may be administered intramuscularly at least 6 months after completion of the primary series in individuals 18 years of age or older.

Q: Why is the SPIKEVAX booster dose lower than/half the dose of the primary vaccination series?

Answer:
SPIKEVAX comes in the following dosage forms:

- Each dose in the primary vaccination series for individuals 12 years of age and older is 0.5 mL and contains 100 micrograms (mcg) of elasomeran (mRNA).
- Each dose in the primary vaccination series for individuals 6 to 11 years of age is 0.25 mL and contains 50 micrograms (mcg) of elasomeran (mRNA).
- Based on the safety and efficacy data available, Health Canada authorized the booster dose to be 0.25 mL with 50 mcg of elasomeran (mRNA).
- Immunocompromised persons, including individuals receiving immunosuppressant therapy, may have a diminished immune response to the vaccine. In these individuals, a third dose may be considered as part of the primary series.

Q: Will this be an annual COVID-19 vaccine booster shot? Or is this the only one?

Answer:
Moderna is continuing to investigate potential additional dosing formulations and schedules of SPIKEVAX. The specific timing of if and when any new potential product development would be available and authorized for use by Health Canada is unknown at this time.

Q: How many times can the vial stopper be punctured?

Answer:
Do not puncture the vial stopper more than 20 times. If the vial stopper has been punctured 20 times, discard the vial and contents. Once the vial has been entered, it should be discarded after 24 hours. Do not refreeze. Please refer to the Product Monograph for full information on dosing and administration.

Q: Can I use the same vial for primary series and booster doses?

Answer:
SPIKEVAX multidose vial contains ten (10) doses of 0.5 mL volume each or a maximum of twenty (20) doses of 0.25 mL volume each that can be withdrawn.

When extracting a combination of primary series and booster doses from either vial presentation, the maximum number of doses should not exceed 20 doses. Do not puncture the vial stopper more than 20 times. If the vial stopper has been punctured 20 times, discard the vial and contents. Once the vial has been entered, it should be discarded after 24 hours. Do not refreeze. Please refer to the Product Monograph for full information on dosing and administration.

Section 5: SPIKEVAX Booster Shot

Q: What should I tell patients who are undecided about getting a booster?

Answer:
A booster shot may be needed periodically to "boost" the immune system. Often your immune system remembers how to keep fighting a disease for the rest of your life. Sometimes immunity needs to be reinforced (i.e., such as when a virus mutates and a new variant emerges), and that's what booster shots are for, such as a Tdap vaccine to prevent tetanus, diphtheria, and pertussis. The intent of a booster dose is to restore protection that may have decreased over time whereby relying on the primary series vaccination may no longer be adequate.

Q: Which booster dose are individuals able to receive? If someone had 2 doses of the same COVID-19 vaccine brand previously (i.e. during the primary series), does that person need to receive the same brand for a booster shot?

Answer:
Booster choice is not limited to what was in the primary series. Canada's National Advisory Committee on Immunization (NACI) recommends an mRNA COVID-19 booster dose, regardless of what was received in the primary series.

SPIKEVAX is an mRNA vaccine.

SPIKEVAX may be administered as a single booster dose at least 6 months after completion of the primary series for those 18 years and older.

Section 6: Storage and Handling

Q: The vaccine was incorrectly handled. Can it still be used?

Answer:
SPIKEVAX should be stored and handled under the freezer and refrigerator conditions as described in the Storage, Stability and Disposal section of the Product Monograph.

Vials can be stored refrigerated between 2°C to 8°C (36°F to 46°F) for up to 30 days prior to first use.

Unpunctured vials may be stored between 8°C to 25°C (46°F to 77°F) for up to 24 hours.

After the first dose has been withdrawn, the vial should be stored between 2°C to 25°C (36°F to 77°F). Discard vial after 24 hours. Do not refreeze.

Q: The vaccine appears to be defective or damaged. What can I do?

Answer:
If you have defective or damaged vaccine, please contact Moderna Medical Information at 1-866-MODERNA (1-866-663-3762).

SPIKEVAX is a white to off-white dispersion. It may contain white or translucent product-related particulates.

Inspect SPIKEVAX vials visually for foreign particulate matter and/or discoloration prior to administration. If either of these conditions exists, the vaccine should not be administered.

Packages and vials that have not been stored and handled with the appropriate freezer and refrigeration requirements as outlined in the Product Monograph should be discarded.

Q: Are there any differences in the requirements for the storage and handling of the primary series vaccine doses vs. the booster vaccine doses?

Answer:
SPIKEVAX multidose vial contains ten (10) doses of 0.5 mL volume each or a maximum of twenty (20) doses of 0.25 mL volume each that can be withdrawn.

When extracting a combination of primary series and booster doses from either vial presentation, the maximum number of doses should not exceed 20 doses. Do not puncture the vial stopper more than 20 times. If the vial stopper has been punctured 20 times, discard the vial and

contents. Once the vial has been entered, it should be discarded after 24 hours. Do not refreeze. Please refer to the Product Monograph for full information on dosing and administration.

Section 7: Safety

Q: How safe is SPIKEVAX?

Answer:
The benefits of SPIKEVAX, which is licensed in Canada, continue to outweigh the risks. To date, over 15 million doses of SPIKEVAX have been administered in Canada. SPIKEVAX went through rigorous testing, with the help of 30,000 volunteers in the Phase 3 COVE Study, to obtain full Health Canada approval in September 2021 for primary series vaccination in patients 12 years of age and older. In March 2022, SPIKEVAX gained full approval from Health Canada for primary series vaccination in patients 6 years of age and older. Moderna continues to review all safety and efficacy data as it becomes available.

Q: How did SPIKEVAX get approved?

Answer:
Moderna received the genetic sequence of SARS-CoV-2 in January 2020 and produced a vaccine candidate within 42 days. Within a year, Moderna's vaccine was granted emergency authorization in numerous countries, and in September 2021 SPIKEVAX gained full approval from Health Canada for primary series vaccination in patients 12 years of age and older. In March 2022, SPIKEVAX gained full approval from Health Canada for primary series vaccination in patients 6 years of age and older.

SPIKEVAX was able to gain approval more rapidly than past vaccines for several reasons:

1. Moderna already had 10 years of experience developing mRNA technology. Our mRNA platform and technology helped us lay the groundwork to fight COVID-19 before it even started.
2. Moderna worked with the U.S. and Canadian health agencies, like Health Canada, to reduce typical clinical trial times without compromising scientific rigor.
3. Portions of the trials were overlapped and review was accelerated.
4. Widespread interest in enrollment helped get more patients enrolled quickly.
5. Early investment in manufacturing capabilities enabled rapid production and delivery.

Q: What are the most common side effects of the SPIKEVAX vaccine?

Answer:
The safety profile of SPIKEVAX is based on data generated from an ongoing Phase 3 placebo-controlled clinical study on subjects ≥ 18 years of age (Study P301, NCT04470427).

Solicited adverse reactions were reported more frequently among subjects in the vaccine group than in the placebo group. The most frequently reported adverse reactions after any dose were

pain at the injection site (92.0%), fatigue (70.0%), headache (64.7%), myalgia (61.5%) and chills (45.4%). The majority of local and systemic adverse reactions had a median duration of 1 to 3 days.

Overall, there was a higher reported rate of solicited adverse reactions in younger age groups; the incidence of lymphadenopathy (axillary swelling/tenderness), fatigue, headache, myalgia, arthralgia, chills, nausea/vomiting, fever was higher in adults 18 to 64 years of age than in those 65 years of age and above. Solicited adverse reactions were also more frequent after the second dose, compared to the first one, including grade 3 local and systemic adverse reactions.

Safety data in adolescents (12 to 17 years of age) were collected in an ongoing Phase 2/3 randomised, placebo-controlled, observer-blind clinical trial (Study P203, NCT04649151) conducted in the United States involving 3,726 participants who received at least one dose of SPIKEVAX (n=2,486) or placebo (n=1,240). Of these, 1360 adolescents (vaccine=942, placebo=418) have been followed for at least 2 months (60 days) after the second dose of SPIKEVAX at the time of the analysis (cut-off date May 8, 2021). Overall, solicited adverse reactions at any dose were reported more frequently among adolescents in the vaccine group than in the placebo group. The most frequently reported adverse reactions in adolescent subjects were pain at the injection site (97.2%), headache (78.4%), fatigue (75.2%), myalgia (54.3%), and chills (49.1%).

Safety data in children (6 to 11 years of age) were collected in an ongoing Phase 2/3 two-part clinical trial (Study P204, NCT04796896) conducted in the United States and Canada. Part 1 is an open-label phase of the trial for safety, dose selection, and immunogenicity involving 380 participants who received at least one dose of SPIKEVAX (0.25 mL). Part 2 is the placebo-controlled phase for safety, immunogenicity and efficacy; at the time of data snapshot (November 10, 2021) it included 4,002 participants 6 to 11 years of age who received at least one dose (0.25 mL) of SPIKEVAX (n=3,007) or placebo (n=995), and 2,988 SPIKEVAX participants and 973 placebo participants had received dose 2. No participants in Part 1 participated in Part 2.

In Part 2, the median follow-up duration was 82 days after dose 1 and 51 days after dose 2. A total of 2,981 (99.15%) subjects in the SPIKEVAX group and 966 (97.1%) subjects in the placebo group have been followed for 28 days or more after dose 2. A total of 1,066 subjects in the SPIKEVAX group (35.3%) and 218 subjects in the placebo group (21.9%) have been followed for 56 days or more after dose 2.

Overall, solicited adverse reactions were reported more frequently among children in the vaccine group than in the placebo group. The most frequently reported adverse reactions in children 6 to 11 years of age in Part 2 following administration of the primary series were pain at the injection site (94.8%), fatigue (64.5%), headache (54.3%), chills (30.3%) and myalgia (28.2%).

Anaphylaxis has been reported following SPIKEVAX administration. Very rare cases of myocarditis and/or pericarditis following vaccination with SPIKEVAX have been reported during post-authorization use.

Please see the full Product Monograph for more information on adverse reactions.

Q: Can a woman receive the SPIKEVAX if she's pregnant or breastfeeding?

Answer:
The safety and efficacy of SPIKEVAX in pregnant women have not yet been established.

There is a pregnancy exposure registry that monitors pregnancy outcomes in women exposed to SPIKEVAX during pregnancy. Women who are vaccinated with SPIKEVAX during pregnancy are encouraged to enroll in the registry by calling 1-866-MODERNA (1-866-663-3762).

It is unknown if SPIKEVAX is excreted in human milk. A risk to the newborns/ infants cannot be excluded. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for immunization against COVID-19.

Q: What information do you have on reports of myocarditis/pericarditis after vaccination with SPIKEVAX?

Answer:
Very rare cases of myocarditis and/or pericarditis following vaccination with SPIKEVAX have been reported during post-authorization use. These cases occurred more commonly after the second dose and in adolescents and young adults. Typically, the onset of symptoms has been within a few days following receipt of SPIKEVAX. Available short-term follow-up data suggest that the symptoms resolve in most individuals, but information on long-term sequelae is lacking. The decision to administer SPIKEVAX to an individual with a history of myocarditis or pericarditis should take into account the individual's clinical circumstances.

Healthcare professionals are advised to consider the possibility of myocarditis and/or pericarditis in their differential diagnosis if individuals present with chest pain, shortness of breath, palpitations or other signs and symptoms of myocarditis and/or pericarditis following immunization with a COVID-19 vaccine. This could allow for early diagnosis and treatment. Cardiology consultation for management and follow up should be considered.

Q: What is known about the safety of the vaccine for special populations (children, pregnant women, elderly people)?

Answer:
Children: The safety and efficacy of SPIKEVAX in individuals under 6 years of age have not yet been established.
Pregnant women: The safety and efficacy of SPIKEVAX in pregnant women have not yet been established.

There is a pregnancy exposure registry that monitors pregnancy outcomes in women exposed to SPIKEVAX during pregnancy. Women who are vaccinated with SPIKEVAX during pregnancy are encouraged to enroll in the registry by calling **1-866-MODERNA (1-866-663-3762)**.
Breastfeeding women: It is unknown if SPIKEVAX is excreted in human milk. A risk to the newborns/ infants cannot be excluded. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for immunization against COVID-19.
Elderly people: Clinical studies of SPIKEVAX include participants 65 years of age and older and their data contributes to the overall assessment of safety and efficacy.
In clinical studies, there was a higher reported rate of solicited adverse reactions in younger age groups; the incidence of lymphadenopathy (axillary swelling/tenderness), fatigue, headache, myalgia, arthralgia, chills, nausea/vomiting, fever was higher in adults 18 to 64 years of age than in those 65 years of age and above. Solicited adverse reactions were also more frequent after the second dose, compared to the first one, including grade 3 local and systemic adverse reactions.

Q: Are there any known contraindications?

Answer:
SPIKEVAX is contraindicated in individuals who are hypersensitive to the active ingredient or to any ingredients in the formulation, including any non-medicinal ingredient, or component of the container.

Q: How do I report adverse events from vaccination?

Answer:
Managing marketed health product-related side effects depends on healthcare professionals and patients reporting them. Any serious or unexpected side effects in patients receiving SPIKEVAX should be reported to your local Health Unit.

If a patient experiences a side effect following immunization, please complete the Adverse Events Following Immunization (AEFI) Form appropriate for your province/territory and send it to your local Health Unit.

In addition, you can report side effects to Moderna at 1-866-MODERNA (1-866-663-3762).

Q: Can I administer the vaccine to individuals with a compromised immune system?

Answer:
Immunocompromised persons, including individuals receiving immunosuppressant therapy, may have a diminished immune response to the vaccine. In these individuals, a third dose may be considered as part of the primary series.

Section 8: Drug Interactions

Q: Are there any risks with concomitant vaccines?

Answer:
There are no data to assess the concomitant administration of SPIKEVAX with other vaccines. Do not mix SPIKEVAX with other vaccines/products in the same syringe.