Sharia (Islamic Law) Perspectives of COVID-19 Vaccines

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Abstract

The Coronavirus disease 2019 (COVID-19) pandemic has caused health, economic, and social challenges globally. Under these circumstances, effective vaccines play a critical role in saving lives, improving population health, and facilitating economic recovery. In Muslim-majority countries, Islamic jurisprudence, which places great importance on sanctity and safety of human life and protection of livelihoods, may influence vaccine uptake. Efforts to protect humans, such as vaccines, are highly encouraged in Islam. However, concerns about vaccine products’ Halal (permissible to consume by Islamic law) status and potential harm can inhibit acceptance. Fatwa councils agree that vaccines are necessary in the context of our current pandemic; receiving a COVID-19 vaccination is actually a form of compliance with Sharia law. Broader use of animal component free reagents during manufacturing may further increase acceptance among Muslims. We herein explain the interplay between Sharia (Islamic law) and scientific considerations in addressing the challenge of COVID-19 vaccine acceptance, particularly in Muslim populations.

Keywords

Halal certificate; Sharia (Islamic law); Fatwa; COVID-19 vaccines; islamic
INTRODUCTION

COVID-19, caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) virus, ignited a pandemic in 2020 and continues to circulate. Elevations in case numbers, circulation of variants of concern and potential variants of high consequence have alarmed the world. A coordinated global response led to development of COVID-19 vaccines in record time. Major vaccination efforts are now ongoing throughout the world (1). Unfortunately, uptake has been hindered for several reasons, including religious beliefs (2). This article will provide an Islamic perspective on COVID-19 vaccines.

In Islam, every aspect of life should align with Sharia (Islamic law), or God’s will for humankind. The sources of Sharia are the Al-Quran (Islamic holy book) and Al-Hadith (record of the words, actions, and the silent approval of the Islamic Prophet Muhammad) (3, 4). To effectuate God’s will, Islamic scholars provide their interpretation through the Islamic body of law called Fiqh (Islamic jurisprudence). While Sharia is the decree of God, Fiqh is accomplished via analysis by Ulama (clerics) of Al-Quran and Al-Hadith. Fiqh is neither sacred nor fixed, as it results from human opinion at a certain place and time and can be modified according to circumstances (3). When Muslims need clarity, Ulama perform ijtihad (best efforts) based on their understanding of Sharia and issue a Fatwa (ruling) to address questions. Since Fatwas are based on Fiqh and Ulamas’ ijtihad, varying scientific background and religious experience of Ulamas or authorized institutions may engender multiple different rulings on an issue, including vaccines (5).

Ulamas formulate Fatwas regarding COVID-19 vaccines by considering Sharia sources and scientific studies. During the Fatwa formulation process, Ulamas attempt to weigh religious and scientific values fairly (6). Fatwas are of critical importance to vaccine acceptance in Muslim populations, which have long had concerns about purity of contents (7). We herein describe current COVID-19 vaccine ingredients and how various authorized Islamic regulators have formed the relevant Fatwas. Understanding vaccine regulation under Islamic law provides insights for increasing vaccine acceptance in Muslim-majority countries, especially during a pandemic.

VACCINE INGREDIENTS

Vaccines can be generally classified as live or non-live, which distinguishes those containing attenuated replicating strains of the relevant pathogen from those containing only pathogen components or killed whole organisms. In addition to the ‘traditional’ live and non-live vaccines, other platforms have been developed over the past few decades, including viral vectors and nucleic acid-based RNA vaccines (8). Several COVID-19 vaccines have been developed using these new technologies (9, 10). Vaccines contain essential or active components that induce an immune response conferring protection upon subsequent exposure to the target pathogen. Apart from these active components, the main ingredient is typically water. Other ingredients may be added, including adjuvants to improve immunogenicity, preservatives, emulsifiers (such as polysorbate 80), or stabilizers (e.g., gelatin or sorbitol) (11). These added ingredients are typically present in very small quantities.
Products used during manufacturing could also theoretically remain in the final product and are included as potential trace vaccine components (8). For example, inactivation with formaldehyde is commonly used to produce human and animal vaccines such as those against polio, hepatitis A, enterovirus 71, and influenza viruses (12). The formaldehyde is diluted to trace levels in the final product and does not pose a safety concern (13). Other components may include antibiotics, egg or yeast proteins, latex, glutaraldehyde, and acidity regulators (such as potassium or sodium salts). Except in the case of allergy, such as yellow fever vaccination in the context of true egg allergy, there is no evidence of risk to human health from these trace components (8).

COVID-19 vaccines use several different platforms, with varying active ingredients and excipients. Additionally, some approaches, such as mRNA-based vaccines, are synthetically created in a lab and therefore do not require cell culture during production (9). Composition of COVID-19 vaccines included in WHO’s Emergency Use Listing (EUL) is described in Table 1 (14–19).

**HALAL ASPECT OF VACCINES**

Vaccination coverage varies with access, affordability, awareness, and acceptance. Vaccine acceptance is a crucial component of disease prevention, as vaccines are only effective if used. However, some Muslim individuals have concerns that vaccines and other pharmaceuticals may not be Halal, and are therefore more likely to remain unvaccinated (20). There is also heterogeneity in the influence of religion on vaccination practices amongst Muslim-majority countries. In Saudi Arabia, an Islamic theocracy, a survey showed that parents were highly confident in vaccines; even vaccine-hesitant parents did not view religion as prohibiting vaccination. Conversely in Pakistan, which has the world’s second-largest Muslim population after Indonesia, local rumours with religious undertones falsely asserted that the polio vaccine causes sterilization and contains porcine products. Pakistan continues to see polio outbreaks (21).

*Halal* products are those which are permitted according to the *Sharia* law. Typically, *Halal* refers to the permissibility to eat, drink, or act based on Islamic law and principles. Substances used in vaccine manufacturing may be of animal origin, including swine or derivatives, dead animals, or blood, which are *Haraam* or forbidden for Muslims to consume (6, 22). In Islam, Muslims are required to follow *Sharia* law, which is authoritative. The Holy *Al-Quran* states: “Therefore, (O Believers) eat of the lawful and good things that Allah has provided for you, and be grateful for His favours if it is true that you only worship Him. Indeed, Allah has forbidden you that which dies of itself, blood, and the flesh of swine; also, any flesh consecrated to something other than in the name of Allah. But whoever is compelled by necessity (to eat any of this) not intending to sin or transgress (regarding the quantity eaten), will find Allah Most Forgiving, Most Merciful”. (Q.S. An-Nahl 16:114–115). The passage explains why Muslims abstain from using *Haraam* material or consuming porcine products and derivatives (6, 23).

Swine are amongst the animals declared as *Haraam* by *Sharia* law. Using their parts and derivatives in pharmaceuticals will render them non-permissible for consumption by
Muslims (22). However, swine derivatives are commonly used in vaccine production, including porcine trypsin and porcine gelatine. Porcine trypsin extracted from the swine pancreas is a reagent used during the propagation stage of production of certain vaccines, e.g., inactivated polio and Japanese encephalitis virus vaccines, to remove or detach cells from the culture tank or vessels before harvesting. It may also be used during the final culture stage of virus production for vaccine activation, such as with influenza virus and rotavirus. Although semi-synthetic (recombinant) trypsin is commercially available, porcine trypsin is commonly used for its lower cost and availability. Porcine trypsin is washed from harvested cells before further processing. Its presence is typically assessed by validated techniques, studies of which have mostly demonstrated undetectable amounts of porcine trypsin in final products (22, 24).

Hydrolyzed porcine gelatine is a mixture of peptides and proteins produced by partial hydrolysis of collagen, typically extracted from swine skin, tendons, ligaments, bones, cartilage, or other components. Porcine gelatine is used in vaccines to stabilize and preserve active ingredients during freeze-drying and storage. Unlike food grade gelatine, the gelatine used for vaccine production is highly purified and broken down into peptides. Although only present in small amounts, a label stating “Contains trace quantities of porcine content” is sometimes required by local product registration policy (2, 22, 24).

**FATWA FORMULATION FOR COVID-19 VACCINES**

In Muslim-populated countries, Halal certification administrators use the Holy Al-Quran as a guide for granting the Halal certificate to applicants. Administrators evaluate the cleanliness of the applicant’s premises and equipment, selection of ingredients, and cross-contamination between Halal and non-Halal products (25). “Halal pharmaceuticals” must contain only ingredients permitted by Sharia law. They must specifically: (1) be free of parts or derivatives of animals declared non-Halal by Sharia law or not slaughtered according to Sharia law; (2) not contain najs (impurities); and (3) not be poisonous, intoxicating, or pose a health hazard to users when taken according to prescription (22). However, interpretation and implementation of Halal pharmaceutical certification varies between countries.

Indonesia has the world’s largest Muslim population, with 87% of its 277 million inhabitants identifying as Muslim. It is diverse in terms of language, ethnicity, and cultural background which, in addition to religion, impact vaccine perception. A fatwa, or ruling under Islamic law, to declare Halal status of a vaccine can be issued by Indonesia’s authorized Halal certification administrators, Indonesian Ulama Council (MUI) (21). The first COVID-19 vaccine authorized in the country, Sinovac, was granted a Halal and holy certificate by the MUI on January 11, 2021. The certification states that this vaccine does not use porcine trypsin or other animal enzymes during manufacturing (26). The MUI subsequently issued a fatwa on March 19, 2021 stating that the AstraZeneca COVID-19 vaccine is “Haram-permittable”. MUI claimed it is Haram because it uses porcine trypsin during the early production process, but is permittable to use (or Mubah) due to the urgency of addressing COVID-19 (27). Notably, several other nations with Muslim majority populations, including Saudi Arabia, the United Arab Emirates, Egypt, and Malaysia, use AstraZeneca vaccine without concern over whether it is Halal or Haram (28). Additionally, the Indonesian Food
and Drug Monitoring Agency (BPOM) and WHO have confirmed the absence of porcine products in the AstraZeneca vaccine (16, 28). Some COVID-19 vaccines, the Sinopharm and Pfizer-BioNTech vaccines are also deemed Haram-permittable, and can be used for emergencies. Other COVID-19 vaccines that have been granted EUA from BPOM, such as Moderna, J&J, Sputnik V, and CanSino, are not yet Halal/Haram certified by MUI as of September 2021 (https://mui.or.id/).

Some fear that COVID-19 vaccines will suffer the same fate as the measles–rubella combination vaccine introduced to Indonesia in 2017 (28). At that time, MUI issued a fatwa that the vaccine was Haram due to porcine components being used in the manufacturing process. After the MUI fatwa declaring it Haram, uptake declined precipitously. While all six provinces on Java reached the 95% coverage target and saw measles and rubella cases decline by over 90%, coverage of children on other islands has reached only 68%. In Aceh, the only province allowed to practice Sharia law, coverage is only 8%, putting Indonesia at risk for a measles outbreak (21, 29). COVID-19 vaccine coverage disparities are also seen amongst provinces. Aceh again demonstrates extremely low coverage, with only 11.8% of its target population being fully vaccinated (https://vaksin.kemkes.go.id/).

Religious considerations should be addressed in vaccine roll-out, with the engagement of religious leaders as a priority, since the fatwa specifically permits the use of non-Halal vaccines in the emergency (21).

**RECONCILING SHARIA LAW WITH CONTEMPORARY NEEDS**

Despite potential conflict with Sharia law, clerics in several Muslim countries have accepted vaccines that utilize impure substances such as porcine gelatine in their production process. They concluded that gelatine in vaccines is Halal because it has undergone hydrolysis, which purifies it under an Islamic legal concept called istihalah (perfect change) (2, 30). Istihalah refers to alteration of physicochemical nature to change a non-acceptable Haram product to an acceptable Halal form (31). This view is based on the principle of “transformation” in Sharia law, which is applied to vinegar production from wine (2). Vaccines become acceptable if the impure component is completely transformed into a new substance, different from its origin. Transformation of impure substances through downstream processing, e.g. filtration, to render them negligible in the final product is similarly used with other pharmaceuticals such as Heparin (porcine enzymes) and the Rotavirus vaccine (porcine trypsin). In Muslim jurisprudence, these processes accomplish istihalah and render the final product permissible for Muslim use (2, 32, 33).

In addition to istihalah, istihlak (mixing) can convert an unclean substance into one that is clean (34). ‘Istihlak’ refers to mixing of a substance with another until it is dissolved, causing loss of properties even though the substance still exists. Thus an unclean product can be mixed with a more dominant clean product to vanquish the unclean characteristics. This concept is adapted from the Hadith, which explains the characteristic of two kolah (about 216–270 litres) of water: “The Prophet was asked about the status of stagnant water being licked by reptiles and wild animals (i.e., whether the water is still clean). Then the Prophet said, “If the water exceeds two kolah, then it does not become unclean’. Another hadith
explains “If the water exceeds two kolah, and is then mixed with the unclean, it does not become unclean as long as there is no change in its smell and taste” (33).

The concepts of *istihalah* and *istihlak* are not universally accepted by all Ulamas and authorization councils which determine *Halal* status. Acceptance by *fatwa* institutions varies based upon interpretation of Sharia law (33). However, during the COVID-19 pandemic, all councils agreed that an effective and safe COVID vaccine is a basic necessity, or *darurat* (emergency). Recognition as *darurat* justifies consumption of *Haram* product if needed in an emergency situation (35). The Holy al-*Quran* states: “He has only forbidden you what dies of itself (carrion) and blood and the flesh of swine, and that which is slaughtered as a sacrifice for others than Allah. But if one is forced by necessity without willful disobedience nor transgressing due limits, then there is no sin on them. Truly, Allah is Oft-Forgiving, Most Merciful” (Q.S. Al-Baqarah 2:173). COVID-19 vaccines are recognized as necessary or critical for saving lives and ensuring that societies can function. They are equivalent in status to other established basic human needs such as food and shelter, and therefore are eligible to be classified as *darurat*. A vaccine that protects against harm from SARS-CoV-2 is essential to uphold the principles of sanctity of human life and avoidance of harm (2).

The COVID-19 vaccine development process is also consistent with the principle of the avoidance of harm in Islamic jurisprudence. All vaccines approved for public use undergo stringent safety and efficacy evaluation, which conform to requirements of national ethics bodies (36). Vaccine development reflects the Qur’an’s concept of prevention, or *wiqaya*, which can refer to preventive actions such as against hell-fire, punishment, greed, bad acts, harm and heat. The Qur’an concludes that prevention is one of the laws of God, so it also applies to the role of vaccination for preventing harm to humans (2, 37). This consideration in combination with scientific data provided a basis for *fatwa* councils worldwide to publish Islamic legal rulings permitting use of recently developed COVID-19 vaccines, listed in Table 2.

Vaccines are required to be manufactured under current good manufacturing practices (cGMP) (38–40). cGMP requires that products for human administration should not be contaminated with extraneous materials, including those of animal origin (9 C.F.R. § 113 and 21 C.F.R. 610) (38, 41, 42). Regulations addressing cell culture based biologics became particularly important after the discovery that variant Creutzfeldt-Jakob disease (vCJD) could be transmitted between species by “prions” or infectious protein, without involving any nucleic acids (43). There is a current push to utilize animal-component-free (ACF) or xeno-free reagents (44). In recent years, progress has been made to generate serum-free media alternatives and ACF products for pharmaceutical manufacturing, including vaccine production. As growth media influences cells’ characteristics, safety and efficacy, comparative studies are essential to understanding the differences, advantages, and challenges associated with specific serum-free/ACF formulations. Nevertheless, the use of ACF reagents during vaccine manufacturing aligns with the *Halal* way in *Sharia*, without depending on the acceptance of *Istihalah* and *Istihlak* concepts. Thus, the broader use of ACF products in vaccine manufacturing, especially in Muslim countries, could ameliorate vaccine hesitancy associated with Muslim religious beliefs.

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CONCLUSIONS

From the Islamic point of view, preserving life is aligned with preserving religion (35). Muslims who refuse to receive COVID-19 vaccines may be regarded as acting against Sharia law. Yet Halal certification is only one of many issues that may affect vaccine uptake. The anti-vaccination movement, concerns about long term side effects, accessibility and mis-information pose additional challenges. Effective scientific discourse and communication, including regular engagement with Islamic law scholars, Ulamas, and national regulatory agencies, will be critical for achieving vaccination targets (45).

Individual decisions about accepting COVID-19 vaccines are multifactorial. The Halal issue may pose a significant challenge amongst Muslim populations. Fatwa councils worldwide have used both sharia and scientific approaches to grant Halal certificates for COVID-19 vaccines. Yet there have been inconsistencies across regions. For example, the AstraZeneca COVID-19 vaccine is considered Haram by the Indonesian council but Halal by other councils. Nonetheless, all fatwa councils agree that vaccines are necessary in the context of our current pandemic, and thus receiving a COVID-19 vaccination is actually a form of compliance with Sharia law. Broader use of ACF reagents during manufacturing may further increase acceptance among Muslims.

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DATA AVAILABILITY STATEMENT

The datasets presented in this article are not readily available because the study did not analyze any particular data, we reviewed published articles and Islamic laws. Requests to access the datasets should be directed to ymardian@ina-respond.net.

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### TABLE 1

Active and excipient ingredients of COVID-19 vaccines included in WHO’s Emergency Use Listing (EUL).

| COVID-19 Vaccine (developer) | Platform | Active Ingredients | Other Ingredients | Cell-line used for vaccine manufacture | Animal or human origin excipients in final product |
|-----------------------------|----------|--------------------|-------------------|---------------------------------------|--------------------------------------------------|
| Sinovac-Coronavac (Sinovac) | Inactivated | Each 0.5 mL dose is composed of 3 μg of β-propiolactone-inactivated SARS-CoV-2 virus (Wuhan/WIV04/2019 strain) | Excipients are aluminium hydroxide adjuvant, disodium hydrogen phosphate, sodium dihydrogen phosphate, sodium chloride, and water for injection. The vaccine does not contain preservatives. | Vero cell, extracted from an African green monkey | None |
| BIBP (China National Biotec Group (CNBG), Sinopharm) | Inactivated | Each 0.5 mL dose is composed of 6.5 U (4 μg) of β-propiolactone-inactivated SARS-CoV-2 antigens [19nCoV-CDC-TAN-HB02 strain (HB02 strain)] | Excipients are aluminium hydroxide adjuvant and phosphate-buffered saline (PBS), which composed of disodium hydrogen phosphate deodecylhydride, sodium dihydrogen phosphate, and sodium chloride. | Vero cell, extracted from an African green monkey | None |
| Vaxzevria or AstraZeneca/ AZD1222 vaccine (Oxford University and AstraZeneca) | Viral Vector | Each 0.5 mL dose contains $5 \times 10^{10}$ ChAdOx1-S (recombinant) viral particles, composed of a replication-deficient chimpanzee adenovirus vector encoding the S glycoprotein of SARS-CoV-2 | Excipients are L-histidine, L-histidine hydrochloride monohydrate, magnesium chloride hexahydrate, polysorbate 80, ethanol, sucrose, sodium chloride, disodium edetate dihydrate and water for injection. | T-REx-293 cells, a derivative of the human embryonic kidney (HEK 293) cell line, descended from tissue taken from a 1973 abortion in the Netherlands from an undisclosed source. | None |
| Janssen/Ad26.COV 2.S (Johnson & Johnson) | Viral Vector | Each 0.5 mL dose contains $5 \times 10^{10}$ Ad26.COV2.S viral particles, composed of replication-incompetent adenovirus type 26 (Ad26)-vectorised monovalent vaccine encoding the SARS-CoV-2 spike (S) protein from the Wuhan-Hu-1 isolate (GenBank accession number MN908947), stabilized in its prefusion conformation | Excipients are citric acid monohydrate, trisodium citrate dihydrate, ethanol, 2-hydroxypropyl-beta-cyclodextrin (HBCD), polysorbate 80, sodium chloride, sodium hydroxide, and hydrochloric acid. The vaccine does not contain preservatives. | PER.C6 TetR cell line, derived from human embryonic retinal cells, obtained in 1985 from fetal retina tissue | None |
| Comirnaty or BNT162b2 (Pfizer-BioNTech) | mRNA | Each 30 mcg/0.3 mL dose contains a highly purified single-stranded, 5'-capped mRNA, encoding a P2 mutant spike protein (PS 2) of SARS-CoV-2 virus. | Excipients are ALC-0315, ALC-0159 (polyethylene glycol), cholesterol, potassium chloride, potassium dihydrogen phosphate, sodium chloride, disodium hydrogen phosphate dihydrate, sucrose, and water for injection. | None (cell-free in vitro transcription process from DNA templates) | None |
| Spikevax or mRNA-1273 vaccine (Moderna) | mRNA | Each 100 mcg/0.5 mL dose contains a synthetic mRNA (single-stranded, 5'-capped) encoding the prefusion-stabilized spike glycoprotein (S) of SARS-CoV-2 virus. | Excipients are lipids [SM-102, 1,2-dimyristoyl-sn-glycero-3-phosphocholesterol (DSPC), 1,2-distearoyl-sn-glycerol-3-phosphoethanolamine-N-[methoxy(polyethylene glycol)-2000] (PEG2000-DMG), cholesterol, and 1,2-distearyl-sn-glycerol-3-phosphocholine (DSPC), tromethamine, tromethamine hydrochloride, acetic acid, sodium acetate, and sucrose. | None (cell-free in vitro transcription process from DNA templates) | None |
### TABLE 2

Fatwa (Ruling) status and considerations for granting Halal certification of COVID-19 vaccines in several countries.

| Halal certification administrators | Considerations for Halal Certification for COVID-19 Vaccines | Conclusion Fatwa (Islamic Ruling) |
|------------------------------------|-------------------------------------------------------------|----------------------------------|
| Ulama Council of Indonesia (MUI) ([www.mui.or.id](http://www.mui.or.id)) | Vaccines are required to use Halal (permissible) and holy (clean) ingredients. In granting the fatwa for vaccines, three principles must be met:  
1. Raw materials, additives, and auxiliary materials must be Halal  
2. The manufacturing process must be guaranteed not to be contaminated with impurities (najs)  
3. The manufacturer has a system to guarantee Halal processes throughout production. However, immunization with non-Halal vaccines may be allowed under certain conditions:  
1. When used in an emergency condition, known as al-hajat, or  
2. Halal and holy vaccine ingredients have not been found and there is information from competent and trusted medical personnel that no Halal vaccine is available.  
3. If non-immunization will cause death, serious illness, or permanent life-threatening disability, then legal immunization is mandatory. | 1. Sinovac-Coronavac is deemed "holy and Halal"  
2. AstraZeneca, Sinopharm and Pfizer-BioNTech vaccine are deemed Maram since they use porcine trypsin during manufacturing or contain animal products. Vaccination is permissible by Islamic laws because there is an urgent need to vaccinate immediately and sufficient clean and Halal product is not available. |
| Fatwa Council of the United Arab Emirates ([www.awqaf.gov.ae](http://www.awqaf.gov.ae)) | COVID-19 is a highly contagious disease that could cause death or permanent damage to humans. The vaccine is the only way to protect against this virus.  
2. COVID-19 vaccines are in compliance with Sharia (Islamic law) objectives to protect the human body and with other relevant Islamic rulings.  
3. Even though the vaccine might contain non-Halal ingredients, it is acceptable to use it when there are no alternatives.  
4. Vaccines are categorized as preventive medicines that help society avoid the high risk of infection. | COVID-19 vaccines are Halal |
| Fiqh Academy of the Organization of Islamic Cooperation, Saudi Arabia ([www.iifa-adi.org](http://www.iifa-adi.org)) | Specialists in pharmacology and preventive medicine confirm that the COVID-19 vaccines consist of the messenger RNA (ribonucleic acid) of SARS-CoV-2, recombinant DNA, the common cold virus (adenovirus), other viruses, bacteria, compounds of the Quillaja tree and plants, and auxiliary substances such as potassium, sodium, magnesium, phosphate, acetic acid, tromethamine hydrochloride, diacetate, polysorbate, sucrose, lipids, cholesterol, histidine, ethanol and water. These vaccines do not contain swine or human derivatives. | COVID-19 Vaccines are permissible according to Sharia law (Halal). |
| **Halal certification administrators**                                                                 | **Considerations for Halal Certification for COVID-19 Vaccines**                                                                                           | **Conclusion Fatwa (Islamic Ruling)**                                                                                       |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Islamic Religious Council of Singapore ([www.muis.gov.sg](http://www.muis.gov.sg))                  | 1. Vaccines are a basic necessity                                                                                                                          | Thus far, COVID-19 vaccines (Pfizer-BioNTech and Moderna) in the national program do not diverge from Sharia considerations. As such, we hold the position that a COVID-19 vaccine is permissible for Muslim use (Halal). |
|                                                                                                    | 2. Vaccines are safe and efficacious                                                                                                                        | COVID-19 vaccines are *Halal* as they do not contain animal products of any kind.                                            |
|                                                                                                    | 3. Ingredients used in vaccines are permissible.                                                                                                             | All the vaccines approved in the US (Pfizer-BioNTech, Moderna, J&J) have been deemed permissible to use (Halal).              |
| Taiwan *Halal* Certification Bodies (Chinese Muslim Association and Taipei Grand Mosque) ([www.cdc.gov.tw](http://www.cdc.gov.tw)) | 1. None of the COVID-19 vaccines granted Emergency Use Authorization (EUA) in Taiwan, including the vaccines from AstraZeneca, Moderna, Pfizer-BioNTech and Medigen, contain swine cells |                                                                                                                             |
|                                                                                                    | 2. Many large fatwa councils around the world have already published Islamic legal rulings regarding the permissibility of the recently developed COVID-19 vaccines. |                                                                                                                             |
| The Islamic Food and Nutrition Council of America ([IFANCA)] or Assembly of Muslim Jurist of America ([AMJA)] ([www.amjaonline.org](http://www.amjaonline.org)) | 1. Vaccine approval is not a decision made by one person or company, but by the Food and Drug Administration (FDA) and similar agencies in other countries which follow stringent practices that consider the risk-benefit ratio, congruent with the principles of Sharia | All the vaccines approved in the US (Pfizer-BioNTech, Moderna, J&J) have been deemed permissible to use (Halal).              |
|                                                                                                    | 2. As for the possibility of cultivating some viruses in porcine cells (if actually taking place), the vaccine would usually contain none of the cellular parts. This makes the *najasah* (impurity) occur only by proximity (*mujawarah*). In addition to being microscopic, trivial things of this nature should be excused, particularly when the matter pertains to protecting people from this disastrous pandemic. |                                                                                                                             |
|                                                                                                    | 3. Medical experts in virology and vaccines who are involved in COVID-19 research have clearly stated that the benefits of COVID-19 vaccinations far outweigh their risks. |                                                                                                                             |
| Wifaqul Ulama (Britain) ([www.wifaquulama.co.uk](http://www.wifaquulama.co.uk))                     | 1. Considerations for the AstraZeneca Vaccine:                                                                                                              | In the light of the available data, official statement and clarification, Wifaqul Ulama concluded that COVID-19 vaccines (AstraZeneca, Pfizer, and Moderna) are permissible for British Muslims (Halal). |
|                                                                                                    | a. Ethanol content is very small (0.002 g of alcohol/ethanol per dose of 0.5 mL). This is not enough to cause any noticeable effects.                       |                                                                                                                             |
|                                                                                                    | b. Vaccine production uses the HEK 293 TREX producer cell line originally derived from kidney cells from a female foetus aborted in the 1970s. None of the original foetal-derived cells are used in the vaccine and purification was performed by CsCl gradient ultracentrifugation to remove the cell culture material. |                                                                                                                             |
|                                                                                                    | 2. Considerations for the Pfizer-BioNTech Vaccine:                                                                                                          |                                                                                                                             |
|                                                                                                    | a. The main ingredient in this vaccine is nucleoside-modified messenger RNA and it is not sourced from animals                                                 |                                                                                                                             |
|                                                                                                    | b. All excipients apart from cholesterol are chemically synthesised. The following official statement was released: “The Medicines and Healthcare products Agency confirms that the Pfizer/BioNTech COVID-19 vaccine does not contain any components of animal origin.” |                                                                                                                             |
|                                                                                                    | 3. Considerations for the Moderna Vaccine:                                                                                                                   |                                                                                                                             |
| Halal certification administrators | Considerations for Halal Certification for COVID-19 Vaccines | Conclusion Fatwa (Islamic Ruling) |
|-----------------------------------|-------------------------------------------------------------|----------------------------------|
| Australian Fatwa Council          | a. The following official statement was released, “The Medicines and Healthcare products Agency can confirm that the Moderna COVID-19 vaccine does not contain any components of animal origin.” | The COVID-19 Vaccines (Pfizer-BioNTech, Moderna, AstraZeneca) are permissible according to Islamic law as there is no known religious harm attributed to being vaccinated nor does it contain any forbidden substances (Halal). |
|                                   | 1. COVID-19 Vaccines are safe                               |                                  |
|                                   | 2. In the final vaccine product, there are no gelatine, animal products or cells of any kind remaining           |                                  |
|                                   | 3. None of the vaccine types appears to affect the DNA inside our cells, nor have any vaccines (which have been used for decades) been shown to affect human DNA |                                  |
|                                   | 4. Medical experts in virology and vaccines who are involved in COVID-19 research have clearly stated that the benefits of these vaccinations far outweigh their risks. |                                  |