INTELLECTUAL RESOURCES

Content lists available at SRN Intellectual Resources

## International Journal of Advances in Social Sciences and Humanities

Journal homepage: https://journal.srnintellectual.com/index.php/ijassh



Article

# Implementation of the COVID 19 Vaccination Program for Children Aged 6-11 Years at Lhokseumawe, Aceh Province, Indonesia

Risna Dewi a,\*, Maisyura Maisyura a, Dwi Fitri a, Ade Malahayati a and Mutia Sharani a

- Faculty of Social and Political Science, Universitas Malikussaleh, Muara Satu, Aceh Utara 24355, Indonesia; <u>maisyura@unimal.ac.id</u> (M.M), <u>dwifitri@unimal.ac.id</u> (D.F), <u>ade.190210135@mhs.unimal.ac.id</u> (A.M), <u>mutia.180260008@mhs.unimal.ac.id</u> (M.S)
- \* Correspondence: risnadewi@unimal.ac.id

**Citations:** Dewi, R., Maisyura, M., Fitri, D., Malahayati, A. & Sharani, M. (2022). Implementation of the COVID 19 Vaccination Program for Children Aged 6-11 Years at Lhokseumawe, Aceh Province, Indonesia. *International Journal of Advances in Social Sciences and Humanities*, *1*(4), 197-203.

Academic Editor: Afriani Maifizar.

Received: 5 August 2022 Accepted: 22 November 2022 Published: 30 November 2022

Abstract: Implementation of the COVID-19 vaccine program in Muara Dua Regency for children aged 6 to 11 years is responding to the Covid-19 outbreak by the Ministry of Health. It is initiated a vaccination program to expand the reach of the national vaccination program. Minister of health regulation number 18 of 2021 which regulates the implementation of immunization in the context of handling the 2019 corona virus disease (COVID 19) pandemic has this clause. The city of Lhokseumawe complies with the Covid-19 virus vaccination schedule from the central government. For children aged 6 to 11 years, socialization has been carried out to improve the performance of all elements so that they can suppress the growth of Covid 19. In order to achieve the goal of reducing the spread of COVID 19 for the generation of children, the cooperation of related parties has been carried out. useful in vaccinating children aged 6 to 11 years. This collaboration supports and strengthens each other. Human resources play a key role in driving policy implementation because they act as the driver. Lack of adequate information, training or human resource competencies contributes to the frequent failure of policy implementation. Human resources have the greatest impact on the efficiency and quality of execution. FORKOPIMCAM sees human resources as the initiative behind the initiative. To make the implementation of child vaccines successful, the public must be informed about the spread of COVID-19 and utilize all available human resources.

**Keywords:** policy implementation; vaccine program; COVID-19; children.



Copyright: © 2022 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<a href="https://creativecommons.org/licenses/by/4.0/">https://creativecommons.org/licenses/by/4.0/</a>).

#### 1. Introduction

One of the steps in the policy-making process that determines whether a policy is in the public interest and supported by the general public is the implementation of public policy. In this regard, it must be emphasized that although success in the planning and policy formulation stages is conceivable, it is not clear what to anticipate from the policy program if optimization is not carried out at the implementation stage. Wherein indicates that the implementation

e-ISSN: 2948-4723/ @ 2022 SRN Intellectual Resources https://doi.org/10.56225/ijassh.v1i4.96 process will not begin until a law or regulation is passed and funds are available to support the implementation of the policy. However, policy implementation is seen as a complex phenomenon that may be understood as a process, an output or as a result. At the end of 2019, the world, including Indonesia, was shocked by a new virus that makes all its citizens nervous due to the corona virus (COVID-19). On March 12, 2021 WHO (Word Health Organization) announced that Covid-19 was declared a pandemic due to the increasing number of cases, and also this outbreak was declared a global health emergency. The recently identified coronavirus is an infectious disease known as coronavirus disease (Covid-19). Most individuals infected with the Covid-19 virus will experience mild to severe respiratory infections and recover without the need for special treatment. Infected with this virus when it was first discovered in Wuhan, China (Backer et al., 2020); (Wu et al., 2020). All parties, both domestically and internationally, including WHO, a United Nations organization that is the global coordinator for public health based in Geneva, has paid attention to the spread of the disease.(Hoang, 2021).

Governments around the world, including Indonesia, have been pushing vaccination programs as part of efforts to return the world to pre-pandemic conditions. Responding to the Covid-19 outbreak, the Ministry of Health initiated an immunization program to expand the reach of the national vaccination program. This clause is part of the Regulation of the Minister of Health Number 18 of 2021 which has been ratified by the Minister of Health on May 28, 2021 and amending the Regulation of the Minister of Health Number 10 of 2021 to adapt to changing situations and conditions. current situation. The regulation discusses the implementation of vaccinations in the context of controlling the 2019 corona virus disease (COVID-19) pandemic. To date, the Covid-19 outbreak has also forced Indonesian students to complete distance learning at home as their schools have been closed for about two years. because many children whose academic achievement is declining. Therefore, the government intends to introduce face-to-face learning now to restore learning.

According to the Presidential Instruction for Covid-19 vaccination for children aged 6-11 years, according to statistics from the 2020 population census, the desired number is 26.5 million children. In addition, the Covid-19 immunization for children aged 6 to 11 years has been recommended by the Indonesian Technical Advisory Group on Immunization (ITAGI). administering the Covid-19 vaccine on the recommended schedule for children between the ages of 6 and 11 years. Lhokseumawe City in Aceh Province is a city that administers Covid-19 vaccinations to its residents in accordance with regulations set by the national government. In Lhokseumawe City, thousands of youngsters between the ages of 6 and 11 have received vaccinations. From the entire goal of 20,736 children, 5,365 children have received vaccinations, representing a 25.87 percent success rate. The Lhokseumawe city police are stepping up kid immunization. The daily immunization aim will be 500 kids. With the aim in place, the goal can be completely or wholly met by the time March rolls around.

According to preliminary data, some children refuse vaccinations for fear of being injected, and other parents forbid their children from receiving the Covid-19 vaccine. Because of how important parental explanations are to their children, parental awareness about vaccination is very important for children aged 6 to 11 years. Some parents refuse to let their children receive Covid-19 immunizations because they are influenced by news from questionable sources. such as claims that vaccines can cause illness, fever, that vaccinations are harmful to health, and other vaccine-related myths. Because of something that is commonly known in the environment, people are frightened and act accordingly.

This study aims to evaluate the implementation of the COVID 19 immunization program for children aged 6 to 11 years in Muara Dua District, Lhokseumawe City. COVID 19 vaccine for children aged 6-11 years: Communication/socialization of related parties, and human resources. There is a problem Some parents do not allow their children to take the Covid-19 vaccination, namely because they are consumed by news that has no clear source, such as vaccines will get sick, have fever, vaccines are not good for health. and many other hoaxes about vaccines. This is what is widely spread in the community so that they are afraid and do not want to be vaccinated. while the government is making this children's vaccine program to protect children from COVID 19 so they can take part in face-to-face learning. This study aims to analyze and describe the implementation of the COVID 19 vaccination program for children 6-11 years old so that the results or achievements of this program are achieved as a solution to handling COVID 19 and increasing the effectiveness of learning in schools. Describes the implementation of the COVID 19 vaccination program for children aged 6-11 years in Muara Dua District, Lhokseumawe City.

#### 2. Literature Review

#### 2.1 Policy Implementation

Policy is a program chosen and created by authorities with the aim of achieving a common goal of tackling social problems and advancing the common good, which is seen as one of the most important aspects in triggering changes in public opinion (Knickmeyer, 2020). According to Ma & Hipel, (2016), policies can be broadly categorized into two groups: socio-psychological and economic rules and regulations and incentives, such as mandatory participation and government subsidies. A policy instrument, or a collection of activities and tools for achieving a policy objective, is a factor in discussions about policy implementation to some extent. Infrastructure, incentives and information are examples of common policy instruments (Bashir et al., 2020); in addition, additional policy instruments, such as

legislation, need to be included (Tian et al., 2022). Public policy is defined by Goodin & Dryzek, (2006) more as an attitude than a science. It examines government decision-making processes and takes into account the views and attitudes of a systematic understanding body. (Frederickson et al., 2018) provide an overview "Babylonian dialect in which participants talk about the past," according to the policy description, Rouhani, (2021).

The larger "policy-making process", "policy process," or "policy cycle" consists of a number of phases that are often evaluated sequentially when defining and implementing public policies and policy instruments (Janssen & Helbig, 2018);(Gerber et al., 2011). The procedure does not end with the implementation phase. Implementation of monitoring rules is required for the assessment (Janssen & Helbig, 2018). This includes determining whether it achieves its intended purpose (Dunn, 2014) and has the desired impact (Gerber et al., 2011),(Lourenço, 2022).

#### 2.2 Vaccine

The Covid-19 vaccine has not been widely used in the United States due to widespread vaccination hesitancy. Prior to the Covid-19 pandemic in 2019, the World Health Organization included vaccine doubt as one of its top ten public health hazards. Vaccine uncertainty is defined as delay in accepting or refusing immunization even though vaccination services are available. The most common reasons for delaying or skipping normal childhood immunizations are concerns about the negative effects and safety of vaccines. Regarding the Covid-19 vaccine, its extraordinary production speed, unfavorable side effects, long-term safety, innovative mRNA technology, and lack of guarantees regarding immune resistance Covid-19 vaccination is often cited as a deterrent. the desire to vaccinate all children is not statistically different, (Byrne et al., 2022).

People need to think about how best to protect children from the consequences of the current pandemic. The fastest and safest method for preventing serious illness and lowering the risk of transmission is the Covid-19 vaccination, which is licensed for use in children in most of the Americas. A number of studies have shown that Covid-19 immunization significantly reduces the risk of hospitalization in vaccinated children compared to vaccinated children. During a pandemic Most pandemic control measures, such as masks, efficient ventilation, and frequent testing, are never used at all or are applied inconsistently. One of the most effective methods now available to reduce the prevalence of Covid-19 in eligible children is immunization. A highly effective school-based immunization campaign has the potential to increase student adoption of the Covid-19 vaccine, reducing the devastating impact of the pandemic on children and their families. These programs are very important to reduce the feeling of injustice received by members of disadvantaged groups. The Covid-19 vaccination campaign should urgently apply the lessons learned from the early childhood immunization campaign to ensure that schools are ready and equipped to lead vaccination as soon as possible, (Peebles et al., 2022).

Importantly, young people contribute significantly to the spread of virus (Gillespie et al., 2022). According to the Centers for Disease Control and Prevention (CDC), giving children ages 5 to 11 the Pfizer vaccination will protect them from developing significant Covid-19 illness including hospitalizations, intensive care unit admissions, and MIS-C morbidity (Covid et al., 2021). In addition, Covid-19 mRNA vaccination is efficient in reducing infectivity, avoiding asymptomatic infection, and preventing symptomatic disease. The delta variance is even (Gillespie et al., 2022). In addition, extensive research shows that children aged 5 to 11 years and 12 years and over have a good safety profile (Hause et al., 2021); (Gillespie et al., 2022), (Savitsky et al., 2022).

Program officers utilize the Covid-19 vaccination information site for children aged 5-11 years to help guide planning prior to the start of the Covid-19 immunization program for children aged 5 years. There is currently no information available on how the prevalence of Covid-19 among children aged 5 to 17 years varies with sociodemographic factors such as race, ethnicity, and income, or how it varies during the pandemic, (Santibanez et al., 2022). All rich countries provide free Covid-19 vaccines, although immunization rates have largely fallen below 80%. (Roser et al., 2020), Various strategies, including financial incentives, have the potential to increase vaccination uptake among people in doubt (direct payment) is also required is a Covid-19 certificate, (Bonander et al., 2022).

#### 3. Methods

This research was conducted naturally and planned using qualitative techniques which are often referred to as naturalistic methods. The focus of this method is also on phenomena. This cannot be done in a laboratory.

#### 4. Results and Discussion

### 4.1 Implementation of the Covid 19 Program in the Context of Communication for Children Aged 6 to 11 Years

The national Covid-19 campaign for children aged 6 to 11 years will start on Saturday, December 14, 2021. With the help of local and provincial communities, vaccinations will be provided with 75 percent coverage. Programs for public health and efficient in treating a number of infectious and serious diseases are vaccinations. History documents the significant contribution of immunization to protecting the global community from disease, death, and disease-related

mortality. Based on the Decree of the Minister of Health, the rules for administering Covid-19 vaccination to children are as follows: Vaccine Use, Dosage, and Requirements Type of vaccine for childhood vaccination The vaccine that will be used for this child vaccination activity is the Bio Vaccine Covid-19 Farma and/or Coronavac which will be used for vaccination. has obtained approval for use in an emergency (emergency use authorization) or issuance of a distribution permit (NIE) from BPOM. The Sinovac vaccine has undergone safety testing and is suitable for use in children. The child's immune system will be attacked by the spread of Covid 19. A child must have the Covid-19 vaccine even though it is often only mildly exposed. In addition, even minor symptoms can cause serious problems, especially if organ damage has occurred. However, the symptoms are less especially if the child is infected with Covid-19. for children receiving Sinovac vaccination, ages 6 to 11 years. This vaccination is given twice, each time with a gap of 0.5 ml for a minimum of 28 days.

Vaccination of children in the target group of 20,736 children has been successfully carried out for dose 1 totaling 15,644 with 75.44% and dose 2 totaling 15,555 with 75.01%. The implementation of the child vaccination program in Lhokseumawe City for the target group of children aged 1 year has been carried out with doses of 1 and 2, respectively, as of September 29, 2022. Public communication in health communication is used to socialize various initiatives. Building children's immunity to the Covid-19 virus is one of the latest initiatives used to combat the virus and target youth. An effective and economical public health strategy to avoid various serious infectious diseases is vaccination of children aged 6 to 11 years. History highlights the importance of protecting the global community from death, including disease-related deaths that can be prevented by vaccinating children against Covid-19.



Figure 1. Child Vaccination at Muara Dua Police Station

Socialization can maximize the performance of all elements, in order to suppress the spread of the spread of Covid 19 for children aged 6 to 11 years. The synergy of related parties in the success of vaccinating children aged 6-11 years has made a good contribution and supports and strengthens each other, so that the goal of minimizing the spread of Covid 19 for generations of children can be maximally resolved. As much as possible, the goal of limiting the transmission of Covid 19 for future generations of children can be achieved with the cooperation of relevant parties in the successful delivery of vaccines for children aged 6 to 11 years. Information on how many children have received the Covid 19 vaccine. There were 1083 children in dose 1 and 606 in dose 2, respectively. The government has not issued instructions for dosing 3. Dissemination of information and implementation of vaccination for children aged 6-11 years can go according to plan. There are several locations that are convenient for children's vaccine activities, including February 13, 2022 in Panggoi, February 17, 2022 in Alue Awe, February 18, 2022 at SDN 7 Paya Punteut, and March 11, 2022 at the Muara Dua Police Station and several other locations.

Vaccines for children aged 6-11 years are not a requirement for brief face-to-face meetings, but rather to improve the safety and well-being of children so that they can complete their schoolwork without interruption. This vaccination is the best way to ensure safety and avoid contracting Covid 19 when students enter school for face-to-face learning, although it is not mandatory. All parties and parents must support and encourage the vaccination process to run well so that everyone can build each other up. The implementation of this program is a response to the community, which aims to encourage parents to enthusiastically give their children permission to engage in limited face-to-face learning. The government is trying to improve the health and endurance of children in an effort to prevent the spread of the virus and protect children who are still at risk from the dangers of Covid-19. Successful implementation will be supported by a solid communication foundation. Communication problems that are now deteriorating have also been handled efficiently in Muara Dua District, Lhokseumawe City, which has communicated effectively with all relevant stakeholders, including parents.

4.2 Implementation of the Covid 19 program for children aged 6 to 11 years in the context of human resources.

Given that in 2030 60% of the population will be in a productive condition, human resources from various parties are involved in the successful implementation of vaccination for children aged 6 to 11 years. Children must be protected from the dangers associated with developing or impending variations to prevent superior human resources. The first thing we did was use vaccination to protect it.



Figure 2. Human Resources Team as Implementer.

In addition to supporting regulations that encourage the community, especially parents, to promote face-to-face learning for children at school, Forkopimcam views human resources as the driving force of the program. The public must remain aware of the spread of Covid-19, then every human resource must be utilized to make the implementation of child vaccination a success. Knowledge and capacity of human resources in the successful implementation of a policy to ensure government initiatives, including vaccine programs for children aged 6 to 11 years to stop the spread of Covid 19, are effective, most of the implementers work according to their respective fields. competence. The main stakeholders in policy implementation are human resources because they function as drivers. Human resources who do not have the necessary skills, knowledge, or training contribute to frequent failures in policy implementation. The most significant factor influencing the effectiveness and quality of implementation is human resources. Humans or officials who carry out policies have the competence and capability to carry out their duties. Therefore, alignment and collaboration between the required number of parties and the availability of appropriate resources for the work being carried out must be maintained between all parties. Children between the ages of 6 and 11 can already receive the Covid-19 vaccine to be protected from face-to-face schooling.

#### 5. Conclusions

Certain actions taken by the government with a view to meeting the objectives set out in a particular set of assessment criteria are referred to as implementation. Policy implementation is a dynamic process in which several variables continue to interact and have an impact. The success of public policy implementation through the communication phase is highly emphasized. Due to the Covid-19 outbreak, Indonesian children for almost two years still have to finish school at home or online school. The quality of children's learning outcomes is reduced. In order to stop the development of educational stagnation, the government intends to provide long-term face-to-face teaching as much as possible. In accordance with the Decree of the Minister of Health of the Republic of Indonesia Number HK.01.07/MENKES/6688/2021 concerning the Implementation of Covid-19 Vaccination for Children aged 6-11 Years, the information provided during communication must be consistent and clear. . to be recorded or executed. To prevent serious illness and death, among other things, vaccines for children must clearly explain the various benefits and purposes, so that there is no fear and panic from parents to give permission for their children to be vaccinated.

Human resources play a role as a driving force in the implementation of the child immunization program, so that they become the main stakeholders in its implementation. Efficient implementation of policy programs requires coordination and cooperation from the Leadership Coordination Forum (FORKOPIMCAM) in the District consisting of the Camat, the Sector Police Head, the Military District Commander, the health service, puskesmas, village apparatus, schools and other related parties in implementing policy can be a full force synergistically. However, it will fail when human resources lack the necessary information, expertise, or training. Human resources have the greatest impact on the efficiency and quality of execution. The person or official who implements the policy has the knowledge and skills to carry out his duties. Therefore, the necessary coordination and cooperation among a number of parties, as well as the availability of suitable resources for the activities carried out, must be maintained among all parties. Children from the age of six to eleven years can already get vaccine services at the postal locations that have been provided.

**Author Contributions:** Conceptualization, R.D., M.M., D.F., A.M., and M.S.; methodology, R.D.; software, M.M.; validation, R.D., M.M., D.F., A.M., and M.S.; formal analysis, R.D.; investigation, R.D.; resources, R.D.; data curation, D.F.; writing—original draft preparation, R.D.; writing—review and editing, R.D., M.M., D.F., A.M., and M.S.; visualization, M.S.; supervision, R.D.; project administration, R.D.; funding acquisition, R.D. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Not applicable.

**Acknowledgments:** The author would like to thank Universitas Malikussaleh, Indonesia for supporting this research and publication. We would also like to thank the reviewers for their constructive comments and suggestions.

Conflicts of Interest: The authors declare no conflict of interest.

#### References

- Backer, J. A., Klinkenberg, D., & Wallinga, J. (2020). Incubation period of 2019 novel coronavirus (2019-nCoV) infections among travellers from Wuhan, China, 20–28 January 2020. *Eurosurveillance*, 25(5). https://doi.org/10.2807/1560-7917.ES.2020.25.5.2000062
- Bashir, M. F., Ma, B., & Shahzad, L. (2020). A brief review of socio-economic and environmental impact of Covid-19. *Air Quality, Atmosphere & Health*, 13(12), 1403–1409.
- Bonander, C., Ekman, M., & Jakobsson, N. (2022). Vaccination nudges: A study of pre-booked COVID-19 vaccinations in Sweden. Social Science & Medicine, 309, 115248. https://doi.org/10.1016/j.socscimed.2022.115248
- Byrne, A., Thompson, L. A., Filipp, S. L., & Ryan, K. (2022). COVID-19 vaccine perceptions and hesitancy amongst parents of school-aged children during the pediatric vaccine rollout. *Vaccine*, 40(46), 6680–6687. https://doi.org/10.1016/j.vaccine.2022.09.090
- Covid, C. D. C., Team, V. B. C. I., Birhane, M., Bressler, S., Chang, G., Clark, T., Dorough, L., Fischer, M., Watkins, L. F., & Goldstein, J. M. (2021). COVID-19 vaccine breakthrough infections reported to CDC—United States, January 1–April 30, 2021. *Morbidity and Mortality Weekly Report*, 70(21), 792.
- Dunn, J. (2014). Interpreting political responsibility. In Interpreting Political Responsibility. Princeton University Press.
- Frederickson, H. G., Smith, K. B., Larimer, C. W., & Licari, M. J. (2018). The public administration theory primer. Routledge.
- Gerber, J.-D., Nahrath, S., Csikos, P., & Knoepfel, P. (2011). The role of Swiss civic corporations in land-use planning. *Environment and Planning A*, 43(1), 185–204.
- Gillespie, M., Jassal, B., Stephan, R., Milacic, M., Rothfels, K., Senff-Ribeiro, A., Griss, J., Sevilla, C., Matthews, L., & Gong, C. (2022). The reactome pathway knowledgebase 2022. *Nucleic Acids Research*, *50*(D1), D687–D692.
- Goodin, R. E., & Dryzek, J. S. (2006). Deliberative impacts: The macro-political uptake of mini-publics. *Politics & Society*, 34(2), 219–244.
- Hause, A. M., Gee, J., Baggs, J., Abara, W. E., Marquez, P., Thompson, D., Su, J. R., Licata, C., Rosenblum, H. G., & Myers, T. R. (2021). COVID-19 vaccine safety in adolescents aged 12–17 years—United States, December 14, 2020–July 16, 2021. *Morbidity and Mortality Weekly Report*, 70(31), 1053.
- Hoang, P. (2021). The implementation of policies and the impact of handling Covid-19 originating from the World Health Organization's Point of View. *Journal La Sociale*, 2(1), 25–30.
- Janssen, M., & Helbig, N. (2018). Innovating and changing the policy-cycle: Policy-makers be prepared! *Government Information Quarterly*, 35(4), S99–S105.
- Knickmeyer, D. (2020). Social factors influencing household waste separation: A literature review on good practices to improve the recycling performance of urban areas. *Journal of Cleaner Production*, 245, 118605.
- Lourenço, R. P. (2022). Government transparency: Monitoring public policy accumulation and administrative overload. *Government Information Quarterly*, 101762. https://doi.org/10.1016/j.giq.2022.101762
- Ma, J., & Hipel, K. W. (2016). Exploring social dimensions of municipal solid waste management around the globe–A systematic literature review. *Waste Management*, 56, 3–12.
- Peebles, A., MacDonald, S. E., & Basta, N. E. (2022). School-based COVID-19 vaccination programmes: An equitable strategy to reduce the impact of COVID-19 on children and their families. *The Lancet Regional Health Americas*, *15*, 100365. https://doi.org/10.1016/j.lana.2022.100365
- Roser, M., Ritchie, H., Ortiz-Ospina, E., & Hasell, J. (2020). Coronavirus disease (COVID-19)–Statistics and research. *Our World in Data*, 4.
- Rouhani, O. M. (2021). Public policy theories for transportation project evaluations: A book review. Elsevier.
- Santibanez, T. A., Black, C. L., Vogt, T. M., Chatham-Stephens, K., Zhou, T., Lendon, J. P., & Singleton, J. A. (2022). Where are children ages 5–17 years receiving their COVID-19 vaccinations? Variations over time and by sociodemographic characteristics, United States. *Vaccine*. https://doi.org/10.1016/j.vaccine.2022.10.025

- Savitsky, B., Shvartsur, R., & Kagan, I. (2022). Israeli parents` views on coronavirus (COVID-19) vaccinations for children: A cross-sectional study. *Journal of Pediatric Nursing*. https://doi.org/10.1016/j.pedn.2022.09.023
- Tian, J., Gong, Y., Li, Y., Chen, X., Zhang, L., & Sun, Y. (2022). Can policy implementation increase public waste sorting behavior? The comparison between regions with and without waste sorting policy implementation in China. *Journal of Cleaner Production*, 363, 132401. https://doi.org/10.1016/j.jclepro.2022.132401
- Wu, A., Peng, Y., Huang, B., Ding, X., Wang, X., Niu, P., Meng, J., Zhu, Z., Zhang, Z., & Wang, J. (2020). Genome composition and divergence of the novel coronavirus (2019-nCoV) originating in China. *Cell Host & Microbe*, 27(3), 325–328.