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A concise framework to facilitate open COVID pledge of non-disclosed technologies: In terms of non-disclosed patent applications and trade secrets

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Background: As a result of the COVID-19 global pandemic, many intellectual property (IP) owners have signed on to the “Open COVID Pledge”, an agreement that makes corporate and university IP available free of charge for the purpose of facilitating the development of technologies that will end the pandemic and minimize the impact of disease. Joining this pledge is relatively straightforward for already-disclosed IPs. However, few, if any, has considered how to encourage owners of “non-disclosed patent applications” and “trade secrets” to sign on to this meaningful pledge. In other words, so far there is no proposal to extend the Open COVID Pledge for confidential pending patents and trade secrets.

Methods: We propose an innovative and flexible framework to cover both non-disclosed patent applications and trade secrets to mobilize inventors to participate in the Open COVID Pledge.

Results: By focusing on immediate publication of the patent-applying technology and extending provisional right to such applications which is subject to the Open Pledge during this pandemic, our recommendations are workable for inventors who would like to pledge their non-disclosed technologies for the detection, prevention and treatment of the COVID-19, in the meantime preserving their IP rights for the post-pledge period.

Conclusion: This paper offers a way forward to guide pledgers and implementers who are interested in supporting the effort by addressing some of the issues associated with the free sharing of non-disclosed patent applications and trade secrets in the fight against COVID-19.

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**Introduction**

Facing the COVID-19 global pandemic, many intellectual properties (IP) owners have signed on to the "Open COVID Pledge", an agreement that makes corporate and university IP available free of charge for the purpose of facilitating the development of technologies that will end the pandemic and minimize the impact of disease. To help institutions carry out this agreement, the Open COVID Pledge has published three standard non-exclusive, royalty-free, worldwide, fully paid-up licenses that anyone can adopt and use to share their patents with the public for a limited time. According to these licences, the pledge can be applied to any person or entity that makes, has made, uses, sells, or imports any patented invention, solely for the purpose of diagnosing, preventing, containing, and treating COVID-19. It covers the period from December 1, 2019 until one year after the World Health Organization (WHO) declares the COVID-19 pandemic to have ended, or by January 1, 2023. This pledge has been endorsed by a variety of researchers and law scholars, including 2020 Nobel laureate Jennifer Doudna and Stanford Law professor Mark Lemley, and many companies, including Amazon, Facebook, Hewlett Packard Enterprise, IBM, Microsoft, Intel and Sandia National Laboratories, have already signed on to share their patents with the public.

To prevent the coronavirus’ spread, a more efficient way of developing biologics, drugs and medical devices for infected patients is sorely needed. For already-disclosed IP, the IP owners can simply select to either join the Open COVID pledge, or accept compulsory licensing requested by governments. Compulsory licensing enables governments to force technology owners to license their patents or disclose their technologies in public. While the U.S. Senate had introduced a bill extending the terms of COVID-19 related patents, legislators in other countries had authorized government usage, a type of compulsory licensing, of such patent inventions during public health emergency, including Canada and Germany. Recently, the U.S. proposes a waiver on vaccine-related patents and has attracted opposition from the U.K. and the E.U., which vividly suggests the two interests of exterminating the pandemic and securing incentive to invent should be equally regarded. Although patented inventions play an important role in fighting COVID, up to this point, however, due to complications arising from the application procedure and some legal issues, no one has discussed how to mobilize the owner of "non-disclosed patent applications" and "trade secrets" to join the Open Pledge.

Thus, this article will propose a concise framework for the free sharing of non-disclosed COVID-19 technologies in terms of non-disclosed pending patents and trade secrets, especially for inventors in possession of non-disclosed technologies but are unable to develop them on their own. We suggest utilizing existing mechanisms of patent application procedure and offering provisional rights to inventors as soon as they pledge their pending patents and disclose the claimed invention to the public before normal publication date to incentivize early reveal of COVID-19 technologies. The Open COVID-19 Pledge is limited in subject matter and temporal scopes. It focuses only on COVID-19 related products and will terminate no later than January 1, 2023. In order to avoid the pledge and disclosure to affect patent or trade secret protection that undisclosed technologies in the form of patent applications or trade secrets would originally enjoy outside of the Open Pledge and hence destroy the incentive for inventors to join the Pledge, an earlier start of the provisional rights would be necessary. As for the patent-related technologies that are protected as trade secrets instead of patents, we propose using exclusivity to "compensate" for the same purpose in the second half of this paper.

**In terms of non-disclosed patent applications: grace period, provisional application and provisional rights under voluntary or mandatory model**

Inventors who are working on technologies related to products or methods used in the diagnosis, mitigation, treatment or prevention of COVID-19 should be encouraged to disclose the content of their inventions as soon as possible to participate in the Open COVID Pledge. The "grace period" under patent law gives inventors a period of time to prepare for a patent application. As soon as the Open COVID Pledgers disclose their invention to the public, they can take advantage of the "grace period" to ensure the novelty of the related conception. The inventor is encouraged to disclose COVID-19 related technologies instantly, and to claim a "grace period" later when filing a patent application, for which the invention is still considered novel for 12 months after its disclosure. This mechanism is a perfect tool to stimulate early disclosure of the COVID related technologies in pursuit of the Open COVID Pledge even before a formal patent application is filed, while still retaining the opportunity to be awarded and fully protected by patents.

Nevertheless, there are other cases where an Open COVID Pledger intends to disclose his/her invention after filing a patent application, but still needs time to prepare a formal application. In cases such as these, a "provisional application" could be filed. The "provisional applications" allow inventors to obtain a valid filing date without submitting a complete patent application. Items such as claims, oath or declaration, and information disclosure statement (IDS) could be supplemented later on in a complete application. The "provisional applications" ensure the priority of the patent application with the United States Patent and Trademark Office (USPTO) so that the embodied invention will not be pre-empted by other applicants based upon the same invention, and its priority could be preserved up to 12 months. It should be noted that the provisional application would not be published or reviewed, yet the inventor may voluntarily disclose the embodied invention to the public, and allow others to practice the invention for the purpose of diagnosing or treating COVID-19 on condition of following the Open COVID Pledge agreement. The "provisional application" thus serves as a helpful tool for the Open COVID Pledgers to obtain the benefit of a filing date in an abbreviated manner while retaining priority and novelty. The inventor could file a
formal application anytime within 12 months after the filing date of the provisional application. She may also decide to file an international application under the Patent Cooperation Treaty (PCT) or a foreign patent application, and claim priority tracing back to the day of the provisional application in the United States. The complete patent application will be disclosed by the USPTO after 18 months from the filing of a formal patent application, if the application is not subject to a request of early publication or is abandoned 4 weeks prior to the projected date of publication.

To accommodate patent law to the demand of the Open COVID Pledge, the related provisions for provisional and formal application could be modified for furthering the purpose of the Open COVID Pledge, which enables organizations to contribute to the fight against COVID-19 by making a commitment to share intellectual property for the purposes of ending and mitigating the COVID-19 pandemic. We propose that inventors who participate in the Open COVID pledge should be encouraged to publish their patent applications immediately within 30 days after the filing date, or the day when the commitment is made, in exchange for gaining provisional rights as an appropriate and corresponding compensation to secure proper rewards to the inventor. Although the provisional rights of such a patent can not be applied to those who make, use, sell, or import products involved in the diagnosis, cure, mitigation, treatment, or prevention of COVID-19 during the allotted time period according to the commitment of the Open COVID Pledge, such rights could still be extended to other products or methods that are not connected to COVID-19. The model can be designed as either "voluntarily" or "mandatory".

In a voluntarily model, the participants of the Open COVID pledge could commit to the early publication of their patent applications. For a formal patent filer, the commitment can be achieved by requesting early publication or by simply providing the content of their patent application on a private website (either set up by the official Open COVID Pledge team or the organization that is making the commitment). For provisional applications, even though they are normally kept confidential away from the public, voluntary pledger would disclose them right away through publication or private websites after filing as well to achieve the goal of open licensing.

Provisional rights can be obtained after public disclosure of a complete or provisional patent application, for the purpose of affording proper rewards to encourage the inventors of non-disclosed COVID-19 technologies to join the Open COVID Pledge. To protect published, but not yet issued, patent applications from being infringed upon without compensation, provisional rights allow patentees to obtain a reasonable royalty from any person who infringes on the patent from the date that the patent application is published to the date that the patent is issued, so long as the claim is made no later than 6 years after the patent’s issue date. This protection is provided so long as the infringing person had actual notice of the published patent application, and the issued patent is substantially identical to the invention as claimed in the published patent application. This protection is currently not available in provisional applications, which are not published by the USPTO. To ensure that provisional applications can enjoy the same provisional rights as formal applications, legal amendments may be required.

In a mandatory model, the participants of the Open COVID Pledge could be required by the government agencies to (1) immediately publish their formal or provisional patent applications, and (2) follow an open licensing agreement that is similar to the Open COVID Pledge commitments, in exchange for gaining provisional rights after the applications are published. Of course, such a model may need amendments to the patent law to ensure that the early publication and provisional rights are only applied to the qualified patent applications.

There are some preconditions to be met for qualifying for the provisional right. First, an eligibility review that ensures the patent applications are made to cover a product or method used or assisted in the diagnosis, cure, mitigation, treatment, or prevention of COVID-19 is necessary. Second, the term of licensing should be limited to respond to the demand of public health against the COVID-19 pandemic, which makes it impossible to enforce until the competent authority declares the COVID-19 pandemic to have ended, or until any fixed date that the law deems fit. Third, the eligibility reviewing and listing mechanisms for such patent applications should be initiated after publication to ensure transparency, confirm the binding effect of the Open COVID Pledge, and avoid false listings for later collaboration in a larger innovation ecosystem. If the patent is later found to be ineligible because of its lack of relevance for the COVID-19 pandemic, the provisional rights might be withdrawn. If the patent is later found to be invalid because of its lack of patentability, the inventors or filers will not enjoy the benefits provided by the proposed model.

As mentioned above, the proposed model could provide early access to information contained in COVID-19-related provisional/formal patent applications, with provisional rights provided as an incentive. It could work together with the Open COVID Pledge as a voluntarily model, or set up independently as a mandatory model governed by various countries.

In terms of trade secrets: voluntary cooperation or stand-alone exclusivity

There is one more thing that needs to be addressed. The Open COVID Pledge only removes the legal barrier of patents that hinders researchers from moving forward to develop COVID-19 related technologies. The pledgers, however, have not committed to transfer those technologies to the implementers. They may not be willing to teach the implementers how the technology works, or how to make the product. That is not in the scope of the Open COVID Pledge. As a result, the implementers still need to develop or learn how to use these patented or patent-pending technologies on their own. Admittedly, to curb the disease as early as possible, technical assistance may be preferable to build capacity rapidly on a global scale to fight the pandemic. Those pledgers, however, may not have sufficient capabilities and experts to provide technical guidance to those who would like to apply the technologies.
This is not only true for patented or patent-pending inventions. It is even truer for unpatented know-hows, such as production methods or skills. Those know-hows may be critical for implementing technologies covered by the Open COVID Pledge or provisional applications, but protected independently as trade secrets. If disclosed publicly, the pledger will contravene the secrecy requirement of trade secrets, and lose the rights and legal protection they currently enjoy on those know-hows. To preserve protected status, those know-hows could only be transferred by a technical crew from the pledger under confidential conditions. In light of the pledgers’ limited resources, know-how transfer could probably only be done on a voluntary, case-by-case basis. In addition, even if the pledger is willing to provide a team of experts to transfer the technologies and know-hows, it is likely that the implementer would have to bear the cost of this technical assistance. We therefore suggest the following two types of institutional designs to streamline this know-how transfer process, in the hope of striking a balance between preserving the right of trade secrets and facilitating their assimilation.

As mentioned above, even though patents related to COVID-19 treatment may be bound by the Open COVID Pledge to assuage their exclusive rights on the market, it is important to note that some specific ingredients, mechanisms or processes for the treatment might be embedded with trade secrets. The coexistence of the patents and trade secrets is inevitable and can bring about unexpected challenges to the original open licensing. Compared with patent rights, as the key character of trade secrets is “public unknowns”, courts usually adopt a more flexible approach to measure the adequate remedies when the misappropriation of trade secrets occurs. Although the eBay rule under patent law has been leading post-eBay cases to emphasize the consideration of the equitable factors, including public interest, it is worth considering whether the eBay rule will be applied to cases of trade secret misappropriation by analogy. In order to secure the open licensing of COVID-19-related patents away from the interference of possibly embedded trade secrets in the same medication or medical treatment, it is essential to extend the concept of open licensing to the related trade secret without ruining its economic value on the market.

The first option is to request cooperation between trade secret pledgers and implementers to strengthen the safeguard of secrecy through private licensing agreements. The appropriate protective measures for the process of transferring trade secrets should be dominated by their owners, and the implementers should comply with the instructions requested by the trade secret owner, unless any exception is stipulated. Furthermore, to whatever extent is feasible, the trade secret owner may be exclusively commissioned to implement the trade secret connected with the patented COVID-19 medication or treatment to secure its secrecy. Thus, the implementers should either develop their own skills with the assistance of consultancy services from the pledgers, or commission the pledger to practice those know-hows for them. If necessary, we agree that government agencies should facilitate some measures by their administrative orders to solve the problem between the pledgers and the implementers. Such measures may include offering templates for formal agreements, public-private collaborations, or strengthen the protection of trade secrets.

![Figure 1](image_url) Our proposed Open COVID Pledge framework in terms of non-disclosed patent applications and trade secrets.
The second option is to let the technical content of the trade secret be publicly disclosed and subject to open licensing along with the patented COVID-19 technologies under a registration system.\textsuperscript{20} In order to ensure that relevancy between trade secrets and COVID-19 patents exists, a substantive examination conducted by the patent office or relevant professional organization/committee is necessary. But the appropriate compensation should be granted to the trade secret owner to make up for its loss of economic value due to its disclosure as a result of committing to the Open COVID Pledge. Alternatively, the protection of exclusivity within a reasonable period, at a stand-alone base, could potentially be conferred to the trade secret owner from the date of public registration, with a precondition that such an exclusive right should be subject to open licensing as the COVID-19-related patents are. Unlike the COVID-19-related patents, the exclusive right of the disclosed trade secret is not vulnerable to the defense of invalidation while failing the patentability requirements under patent law. Nevertheless, the valid exclusive right should be recognized during the term of related patents, provided that the owner can prove the trade secret was not publicly known in the relevant industry prior to its registration. As for enforcement of the exclusive right, as soon as the same technical result of the registered trade secret is achieved, the one that reaches such technical result should be liable for misappropriating the trade secret without authorization, and hence be held as infringing those rights. But use of the trade secret before registration,\textsuperscript{21} as well as independent development of the same know-how without referring to the open trade secret, may be considered exceptions to the exclusive right and negate the presumption of misappropriation.

Conclusion

Putting non-disclosed IP, or any trade secret, in the public domain must strike a delicate balance of interest between pledgers, who create the IP, and implementers, who transform this knowledge into commodities. This is especially true in the face of the COVID-19 pandemic, as the drastic realities under such disease are challenging IP holders in new ways. Since non-disclosed patent applications and trade secrets can also help to develop detection technologies, vaccine and treatments that could alleviate the disease’s impact, we have developed a legal but flexible framework to facilitate the open licensing of non-disclosed COVID-19 technologies, as shown in Fig. 1.

For non-disclosed technologies to be signed on to the Open COVID Pledge, it may require (1) submitting and reviewing data stating whether the patent application claims any products or methods used in the diagnosis, cure, mitigation, treatment, or prevention of COVID-19; (2) publicising such patent applications 30 days after filing to ensure transparency, facilitate open licencing and invite public challenge for abuse, and (3) limiting the use of such inventions to the fight against COVID-19 to a certain time period, depending on how long the epidemic lasts (such as until the day the WHO declares the COVID-19 pandemic to have ended). For trade secrets, voluntary cooperation or stand-alone exclusivity should also be taken into consideration.

The outbreak of the coronavirus demonstrates the acute need for innovation, especially as it pertains to the manufacturing of medical equipment, such as testing kits, as well as the development of software, artificial intelligence (AI) and biotech solutions to contain and end the virus. While the Open COVID Pledge may enable faster control of the COVID-19 outbreak, it also creates a variety of legal issues. By addressing some of the issues associated with the free sharing of non-disclosed patent applications and trade secrets, this paper offers a way forward for pledgers and implementers who are interested in supporting the effort. We are confident that it may contribute to fostering innovation, saving precious time, allowing for the rapid sharing of information within the scientific community, speeding up vaccine and drug discovery processes, and finally resulting in faster patient access to new treatments.

Authors’ contributions

All authors were heavily involved in drafting the manuscript, and adding substantive input during revisions. T.C. Wu and W.W. Hsiao provided the analysis of patent applications. R.L. Wang and C.L. Shen considered the issues from the perspective on trade secrets. Recommendations were established through consensus at a number of deliberations between all the authors. All authors read and approved the final manuscript.

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

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