# Using a Private Blockchain Network for Death Certificate Verification Amid the COVID-19 Pandemic - Ryan Lam

With more and more individuals getting affected each day, COVID-19 has caused a huge strain on our modern healthcare system. Hospitals are being overwhelmed with hundreds (and even thousands) of new COVID-19 positive individuals. With 1 death every 10 minutes and over 196,000 deaths, the transportation logistics of deceased individuals has become a problem. Due to the number of deceased individuals present in hospitals, morgues are being overcrowded, causing a shortage in various medical resources. In addition to this, deceased individuals are shown to have the potential to spread COVID-19, creating a greater risk of workers contracting COVID-19.

With our current healthcare system, deceased individuals are not being transported quickly into funerals with some even being delayed. Most of these delays are caused due to the structure of our healthcare system. For a body to be cremated, the death certificate and cause of death are required to be cleared and approved by the medical examiner's office. Since COVID-19 causes multiple symptoms that may lead to death (i.e. strokes, blood clots, etc.), doctors are required to find the specific cause of death. Descriptions such as pneumonia are not being accepted by the medical examiner's office. In addition to this, death certificates are not digitalized, causing the potential for unnecessary delays to occur in a situation where time is very sensitive and essential. Due to the requirement of finding the specific cause of death, many death certificates need to be corrected, which can take upwards of 3 business days, causing a 1-day transportation delay.

To help combat the logistics of death certificates and transportation, I propose a private blockchain network where digital death certificates can be verified and signed. Using a blockchain network would create a fast and secure method for death certificates to be approved. Using blockchain, workers are unable to tamper with information since the medical examiner's office would be able to see changes and modifications done to a death certificate.

Blockchain networks have shown promise in the healthcare industry and are currently being used in healthcare facilities to share information reliability. For example, Medicalchain, a company based in the UK is currently using a blockchain network in UK hospitals to help doctors access up-to-date patient information.

If we use a similar methodology of a blockchain network, the deceased individual's data would be stored as a smart contract on the blockchain network. The hospital, medical examiner's office, and funeral services would be able to add information ("edit") a deceased individual's data through a blockchain transaction. Since blockchain networks are immutable, unauthorized edits will be detected by the network and ultimately rejected. Using a blockchain network will allow for faster processing of death certificates, giving permission for funeral workers to quickly transport the deceased individual for cremation. A blockchain network would also help funeral services and healthcare workers optimize their operations since both parties would know when a deceased individual is removed from the hospital.

Using a private blockchain network for digital death certificates can help reduce the strain on the healthcare system from COVID-19 in many ways. It will help combat the main issue of logistics and the transportation of deceased individuals. Solving this general problem will help front-line workers in many indirect ways. For a start, morgues will be no longer overcrowded, which will decrease the risk of healthcare workers contracting COVID-19 and will provide workers with essential medical resources. It will also speed up the death certificate approval process, allowing funeral workers to optimize their transportation logistics.

In the future after the COVID-19 pandemic, a private blockchain network can still be used to handle death certificates and store sensitive patient data. Since the blockchain network is private and only used for death certificates, it will be able to avoid scaling problems which many blockchain applications run into.

## Work Cited

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