

Final Project Proposal
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1) Project Overview

Managing vaccines is an integral part of medical practice while becoming more important for other medical specialties and healthcare facilities. Vaccine management has taken a quantum leap over a last few years by providing a system that standardizes and simplifies the work processes of medical practice and healthcare facilities. The demand of a certain vaccine will skyrocket in the foreseeable future due to COVID-19 virus breaking out and spreading across the whole world. Our project is aimed to build a vaccine inventory management and distribute system that will streamline the workflow of vaccine management including managing inventory of vaccines and administering the vaccines and operate at the national, state and local level in order to improve the efficiency, accountability as well as the ability to respond to safety problems.

2) Key Functionalities

The key functionalities include but not limited to vaccine financial management, vaccine distribution, provider ordering, inventory management, the operation of the national vaccine stockpile, the identification of the vaccine injection, i.e. patients, etc.

3) Entities

The following are some basic entities with their functionalities individually.

1. Regulator: Regulator includes Centers for Disease Control and Prevention (CDC) and Department of Public Health (DOPH). CDC will approve the request from DOPHs of each state, have the access to financial management of DOPHs and federally funded vaccines e.g. supporting the development of a potential vaccine, and gather information about the safety of every batch of vaccine. DOPH will provide financial support for those patients who have no insurance, approve the request from providers, ask for approval from CDC, etc.
2. Manufacturer: Manufacturers will, of course, be in charge of producing vaccines, delivering vaccines to every distributor, providing information of stockpiles, contracting CDC, etc.
3. Distributor: Distributors receive orders from various providers and bill providers, send request to the DOPH of the state to which they belong, interact with the manufacturers to receive the shipments, etc.
4. Provider: Providers include hospitals, CVS, Walgreen, etc. Providers have to register first for permission of selling vaccines with the DOPH, purchase vaccines from distributors after receiving the approval from DOPH, provide vaccine for patients directly.
5. Patient: Patients will inject vaccine through local clinics or hospitals, provide vaccination history, insurance information, etc.

