Research Paper

**Proposal:**

To distribute vaccine efficiently in all parts of USA. Using application engineering methodology implementing technology which will distribute vaccines effectively.

**Problem:**

The main issue is the safety of vaccines. The Centre for Disease Control takes care of the vaccines if it’s spoiled or not. Due to this many people gets sick. So the CDC tracks a particular factory from where a particular batch is damaged and calls back the vaccines.

The second problem is the wastage of vaccines. Suppose particular hospital orders some amount of vaccines and after particular period of time some vaccines are unused and reach their expiry date and then it gets wasted and CDC cannot keep track of it.

So the task is to avoid this problems and make sure vaccine is distributed effectively.

**Assumptions:**

There is only one national distributor. Manufacturer has a list of vaccines and its quantity with him and if needed he will manufacturer and ship directly to clinic.

**Implementation & Work Flow:**

The provider (hospital) which is associated with different clinics and its associate satellite clinics gives the requirements of the clinics to the PHD that is department of public health. PHD will receive orders from hospital that is registered sites and it will approve the request and forward it to the CDC for the approval and shipping. Here only registered sites can order the vaccine and the track of this registered sites is been kept by state. Now the CDC which receives the order from PHD will approve the orders and pass it to national distributor. And then the distributor will ship it to the hospital, clinics that is the registered sites. The CDC also keeps the track of the available inventory and based on the population of each state it will allocate the vaccine supply to the registered sites. Registered site can only order the vaccine from the allocated quantity to them. And if the required quantity for that state is reached the order will be delayed or cancelled. The distributor will check if the ordered vaccine is available in his inventory by interacting with different manufactures and distribution centers in a particular region of a country. If it’s available then it will ship to the registered sites directly. Federally funded vaccines are decided by the CDC itself. If it’s federally funded then the whole bill goes to CDC and payment is done. Patient insurance is taken care of that is if the patient is insured the whole bill will go to insurance company.