

Covid-19 Vaccine Rollout

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Affinity Diagram

Data

Row Production

- 1 Manufacturing Equipment
- 2 Raw Material
- 3 Storing Equipment
- 4 Operators
- 5 Quality control
- 6
- 7
- 8

Distribution Transportation

- 1 Warehouses Trucks
- 2 Suppliers Railways
- 3 Inventory Delivery services(Eg: UPS, Fedx)
- 4 Accountants Drivers
- 5 Airways
- 6 Mechanics
- 7 Maintenance
- 8 Loaders

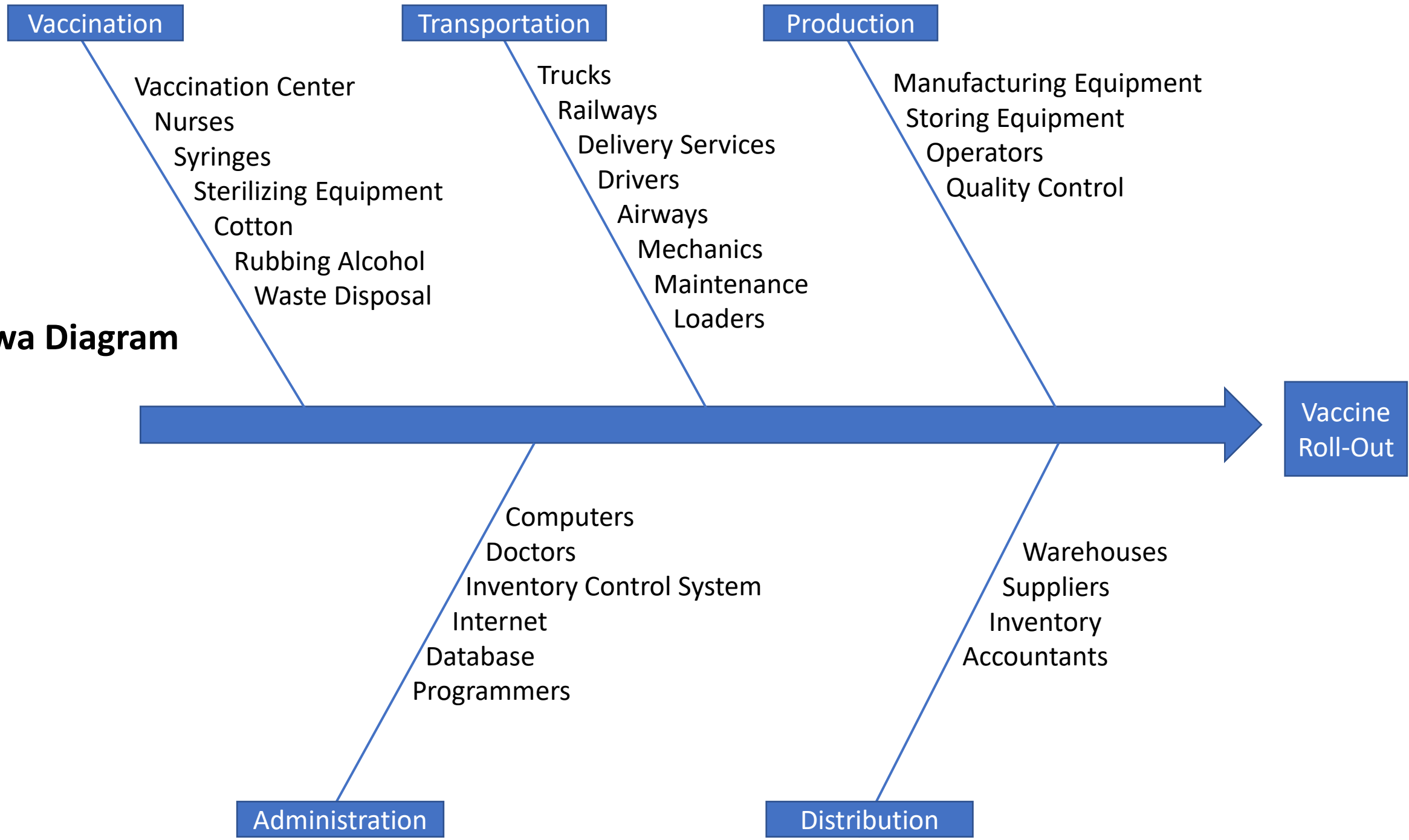
Row Administration

- 1 Computers
- 2 Doctors
- 3 Inventory control system
- 4 Internet
- 5 Database
- 6 Programmers
- 7

vaccination

- 1 Vaccination center
- 2 Nurses
- 3 Syringes
- 4 Sterilizing Equipments
- 5 Cotton
- 6 Rubbing alcohol
- 7 Waste disposal

Ishikawa Diagram



Vaccination

Transportation

Production

Administration

Distribution

Vaccine Roll-Out

Vaccination Center
Nurses
Syringes
Sterilizing Equipment
Cotton
Rubbing Alcohol
Waste Disposal

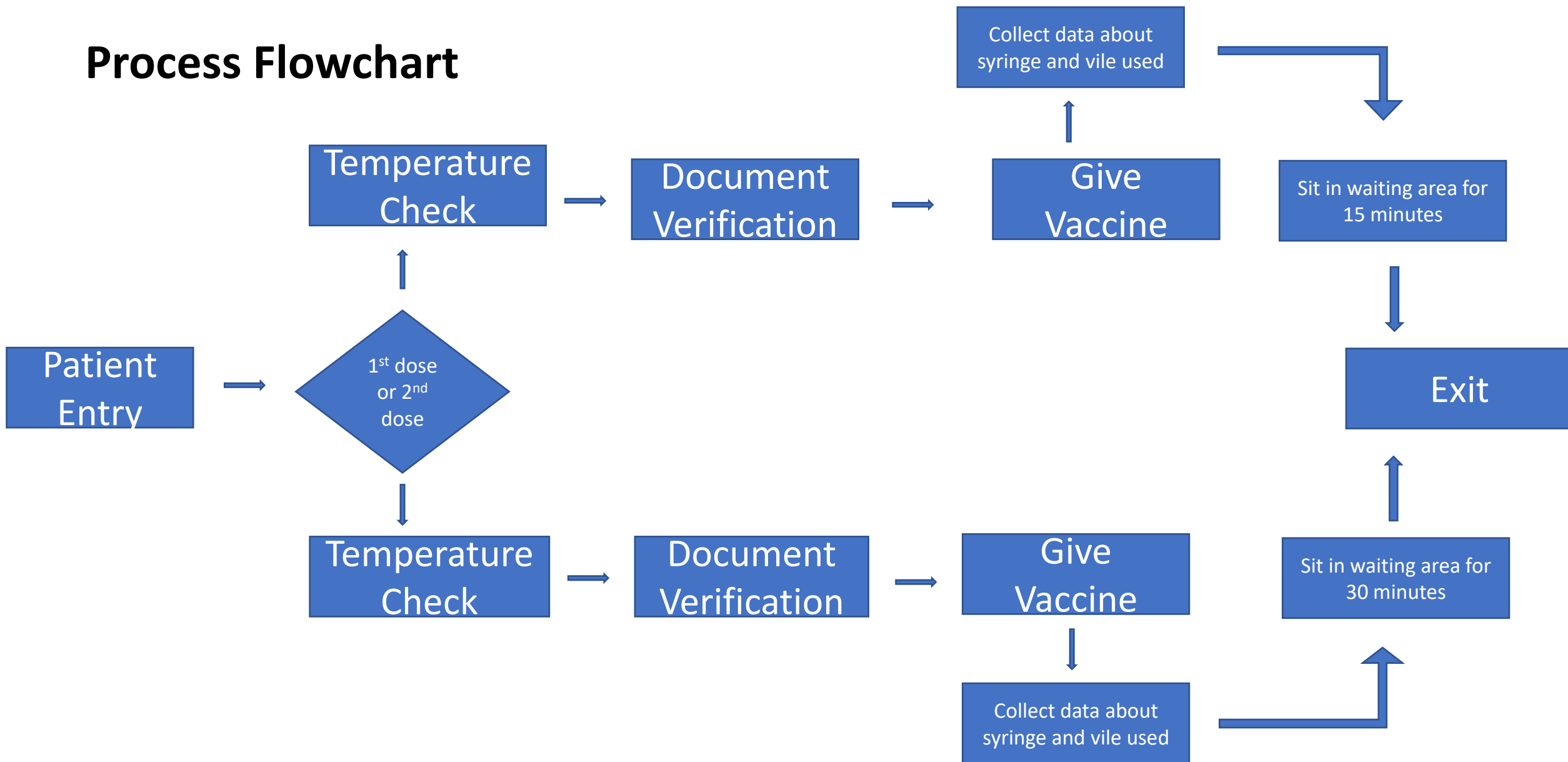
Trucks
Railways
Delivery Services
Drivers
Airways
Mechanics
Maintenance
Loaders

Manufacturing Equipment
Storing Equipment
Operators
Quality Control

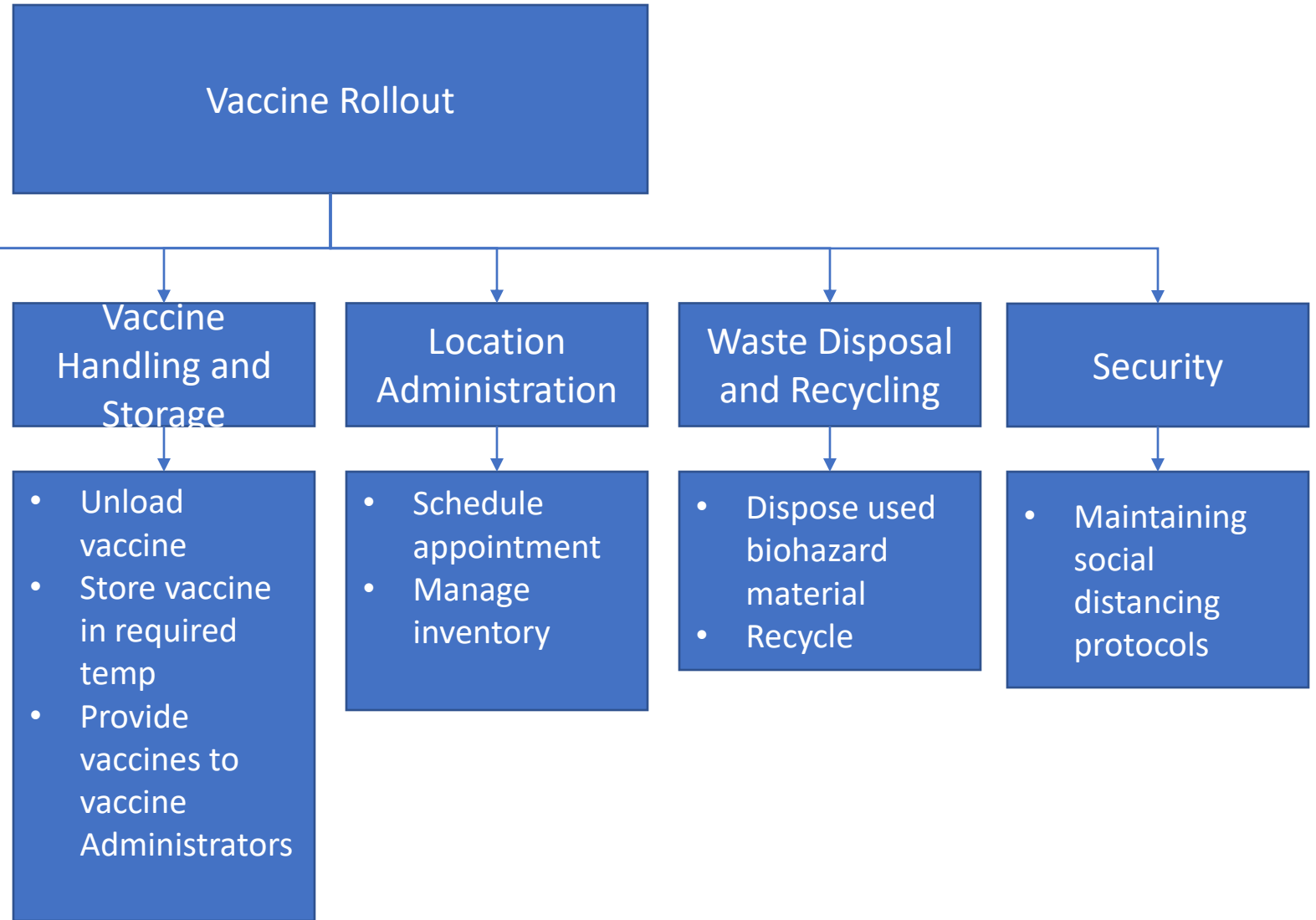
Computers
Doctors
Inventory Control System
Internet
Database
Programmers

Warehouses
Suppliers
Inventory
Accountants


Process Flowchart



Organizational Flowchart



Cost of Poor Quality

COPQ 	Internal	External	Appraisal	Prevention
Less than expected delivery of vaccines	<ul style="list-style-type: none"> ▪ Low rate of production ▪ Machinery failure 	<ul style="list-style-type: none"> • Bad Weather 	<ul style="list-style-type: none"> • Increase Productivity 	<ul style="list-style-type: none"> • Increase number of reliable suppliers • Prepare for emergencies
Difficulty in reaching testing centers	<ul style="list-style-type: none"> ▪ Testing center not in close proximity 	<ul style="list-style-type: none"> ▪ Not enough public transport 	<ul style="list-style-type: none"> ▪ Better transport facilities 	<ul style="list-style-type: none"> ▪ Provide vaccinations at local drug store
Lack of proper vaccine storage facilities	<ul style="list-style-type: none"> ▪ Faulty temperature control storage equipment 	<ul style="list-style-type: none"> ▪ Bad weather ▪ Electrical failure 	<ul style="list-style-type: none"> ▪ Backup Generators 	<ul style="list-style-type: none"> ▪ Separate electrical grid for all vaccine storage locations
Improper scheduling of Vaccines	<ul style="list-style-type: none"> ▪ Improper inventory records 	<ul style="list-style-type: none"> ▪ People not showing up to get the vaccine 	<ul style="list-style-type: none"> ▪ Ordering vaccines based on the number of people scheduled 	<ul style="list-style-type: none"> ▪ Confirming Appointments and maintaining proper inventory records

Quality Assessment: List of individuals to Interview

- Head of Authorization
 - Head of Prioritization
 - Head of Allocation
 - Head of Distribution
- Head of Centers for Disease Control(CDC)

Quality Assessment: Questions for individuals to Interview

Head of Authorization : *Questions*

- On what basis is the government deciding which state gets how many vaccines?
- If a state demands more vaccines than allocated, how do you plan to authorize their demand?
- Will the state authorize the use of this vaccine for the new strains of coronavirus?

Quality Assessment: Questions for individuals to Interview

Head of Authorization : *Answers*

- Each state will get a certain amount, determined by how many adults live there
- Depending on how urgent the situation is, the state shall determine if and how many batches need to be released
- At this moment, the current vaccine is prone to the new strains of coronavirus

Quality Assessment: Questions for individuals to Interview

Head of Prioritization : *Questions*

- On what basis is the priority to provide the vaccine based on?
- If there's an outbreak of the coronavirus among young adults in a locality, would they take priority over the allotted group?
- How do you prioritize between two states in an emergency situation?

Quality Assessment: Questions for individuals to Interview

Head of Prioritization : *Answers*

- There are multiple groups, and these groups have phases that are followed by the state. The groups are classified into age, race, ethnicity and underlying medical conditions.
- That would be decided on the situation and how dire it is
- Depending on how many cases are found and the demography, the call will be taken

Quality Assessment: Questions for individuals to Interview

Head of Allocation : *Questions*

- How do you expect transparency in allotting the vaccine?
- What is the allocated timeline that has been decided for each batch of vaccine to reach a distribution center?
- How would you allocate the number of vaccines if there are multiple distribution centers over the city?

Quality Assessment: Questions for individuals to Interview

Head of Allocation : *Answers*

- We have stationed security personnels at every center. Every person coming in to get vaccinated has a vaccine card and name that is registered to that name.
- Every other tuesday, a batch comes in to the center. Provided there are a lot of vaccines still parked at the center, we send a batch later in the week.
- Depending on demographics, we send more or less number of batches to the decided centers.

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Quality Assessment: Questions for individuals to Interview

Head of Distribution : *Questions*

- How will the COVID-19 vaccine be rolled out?
- What are the requirements to preserve the vaccine while it is in transportation?
- Is the transportation system fool-proof to move the vaccine without being affected?

Quality Assessment: Questions for individuals to Interview

Head of Distribution : *Answers*

- The general population will receive the vaccine based on age and medical conditions. People who have a higher chance of getting very sick or dying will receive the vaccine first
- We have developed a special transport box the size of a suitcase, packed with dry ice and installed with GPS trackers. Each reusable box can keep up to 5,000 doses of the vaccine at the right temperature for 10 days, if sealed.
- Yes, we haven't had a complain about inefficient transport carriers

Quality Assessment: Questions for individuals to Interview

Head of Centers for Disease Control(CDC) : *Questions*

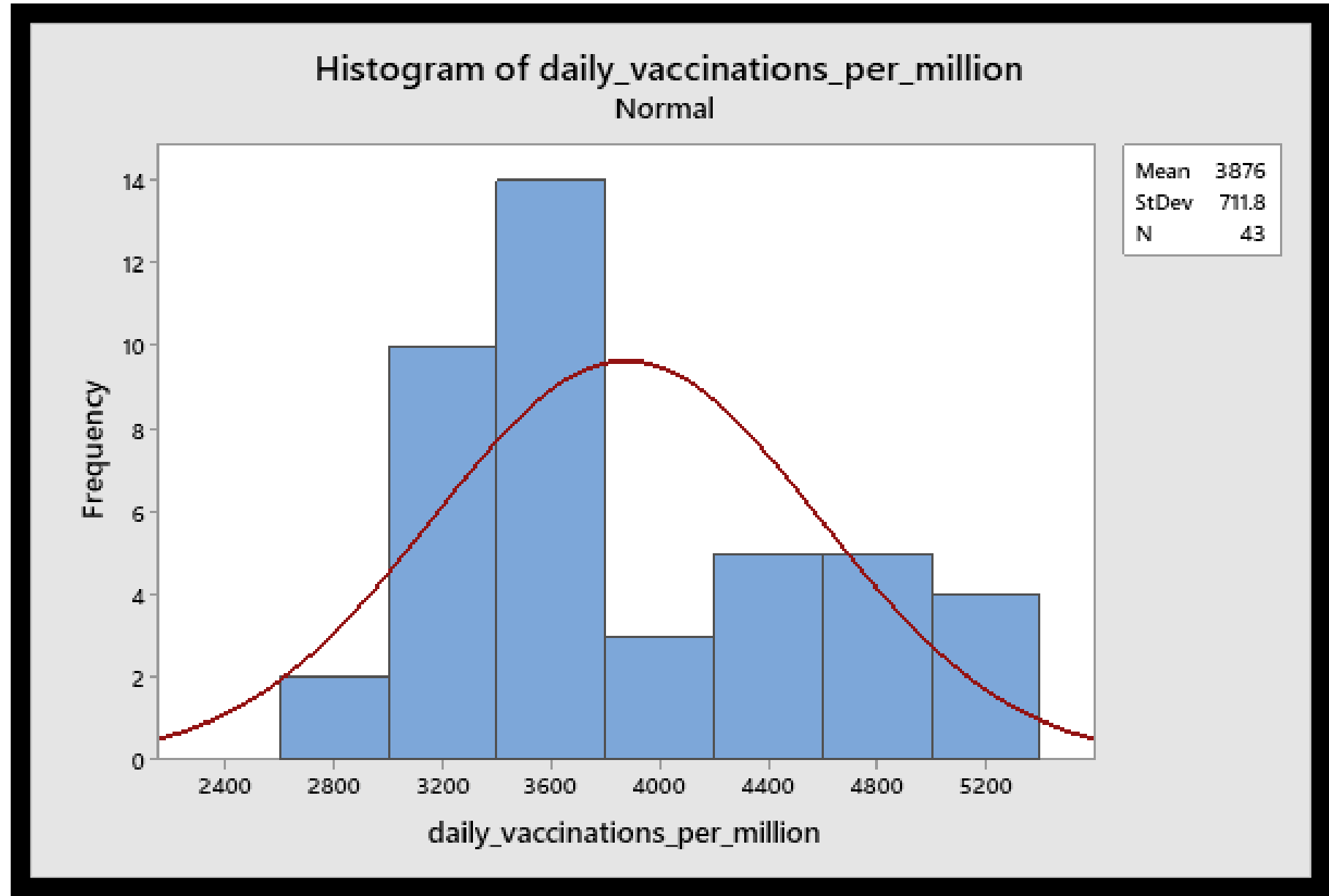
- How have different groups been responding to the vaccine?
- How would you classify if a vaccine has gone bad?
- How do you plan to maintain sanitization and a controlled environment at every distribution center?

Quality Assessment: Questions for individuals to Interview

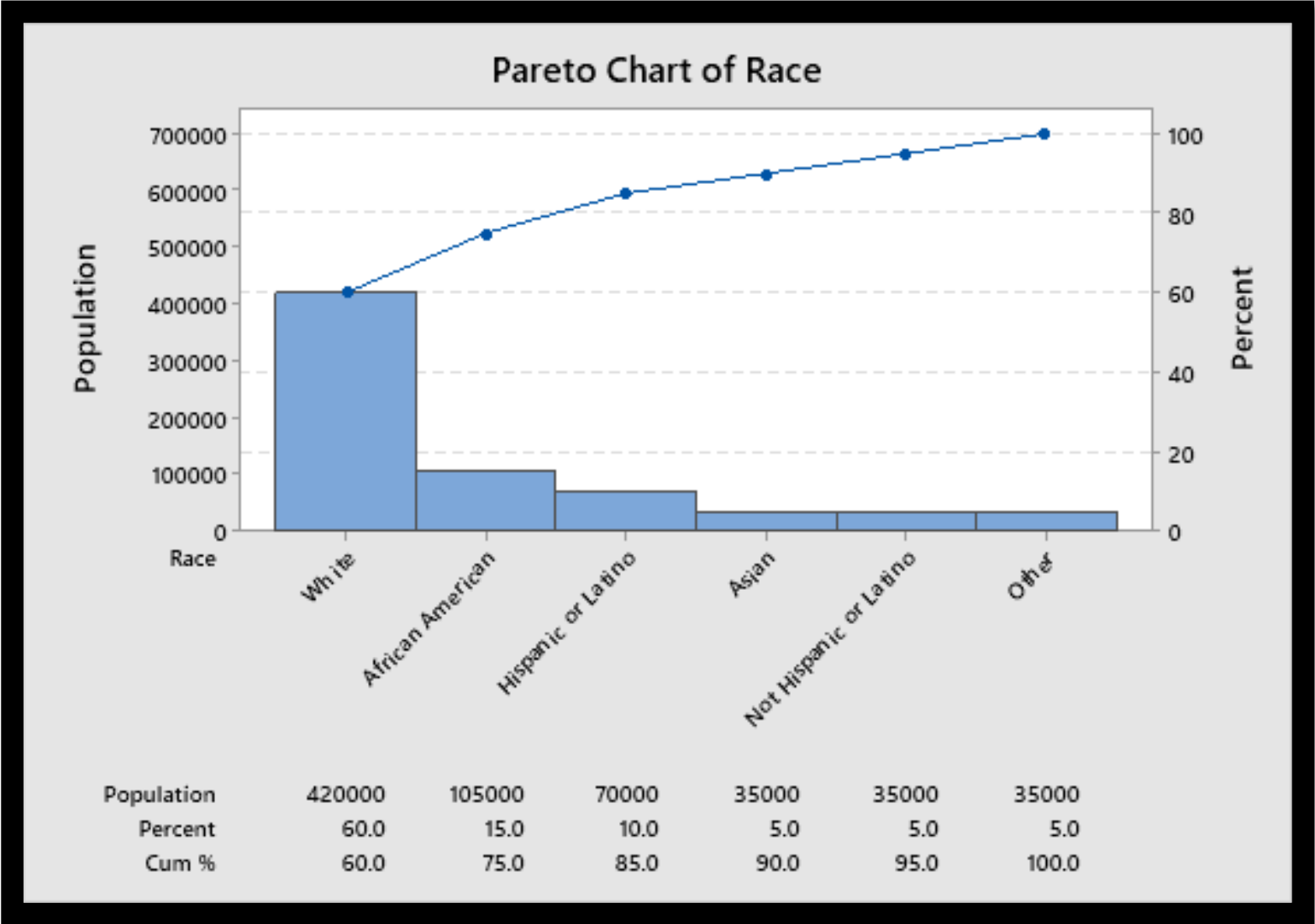
Head of Centers for Disease Control(CDC) : *Answers*

- People have only reported mild symptoms after receiving the 2nd dose of the vaccine
- Out of range temperature will signify if the vaccines are fit to use or not
- There are front line workers and powered generators to help maintain the right environment for the vaccine

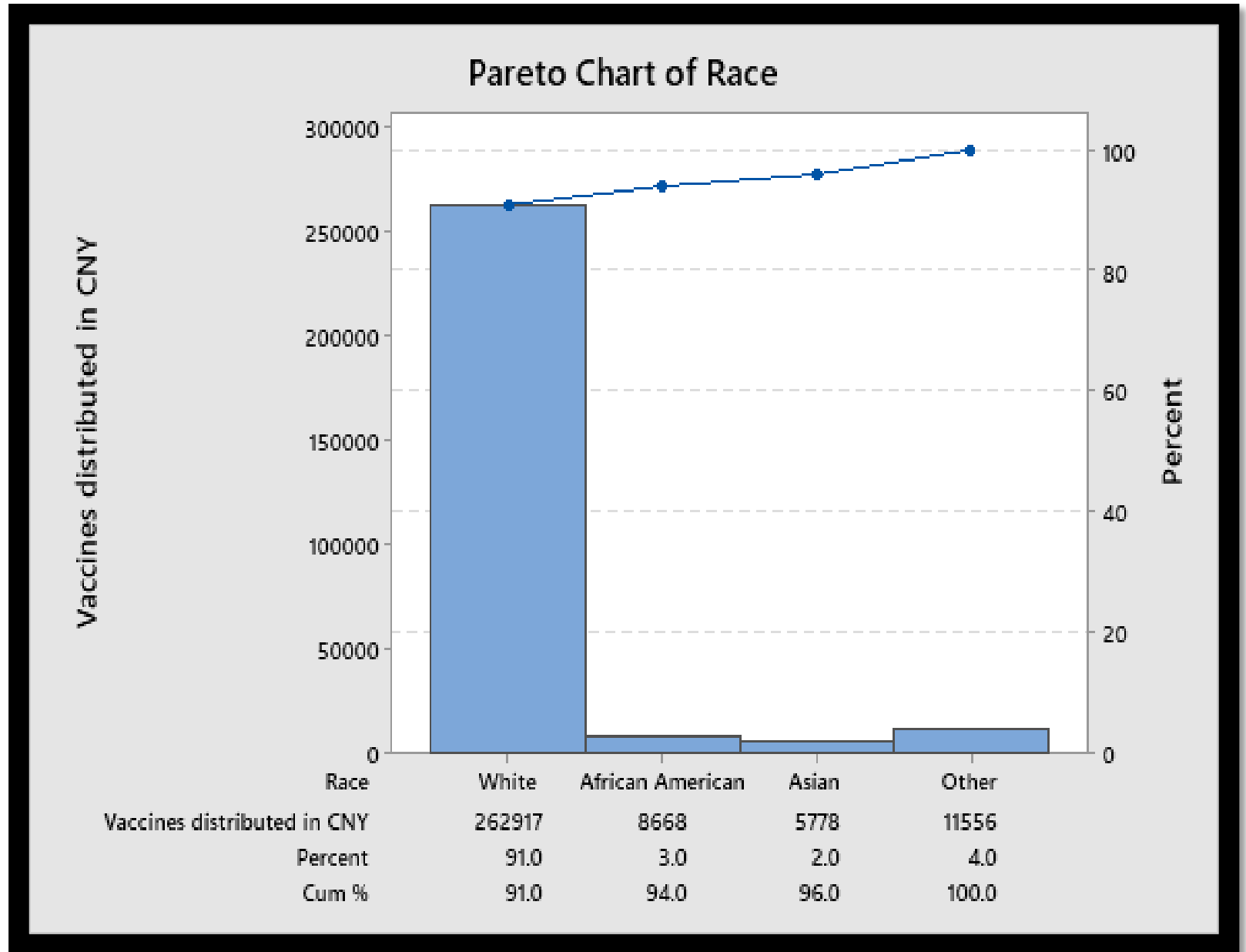
Frequency distribution or Histogram with Normal curve made by data from Daily vaccinations per million of New York state with a mean of 3876 per day and a deviation of 711.8



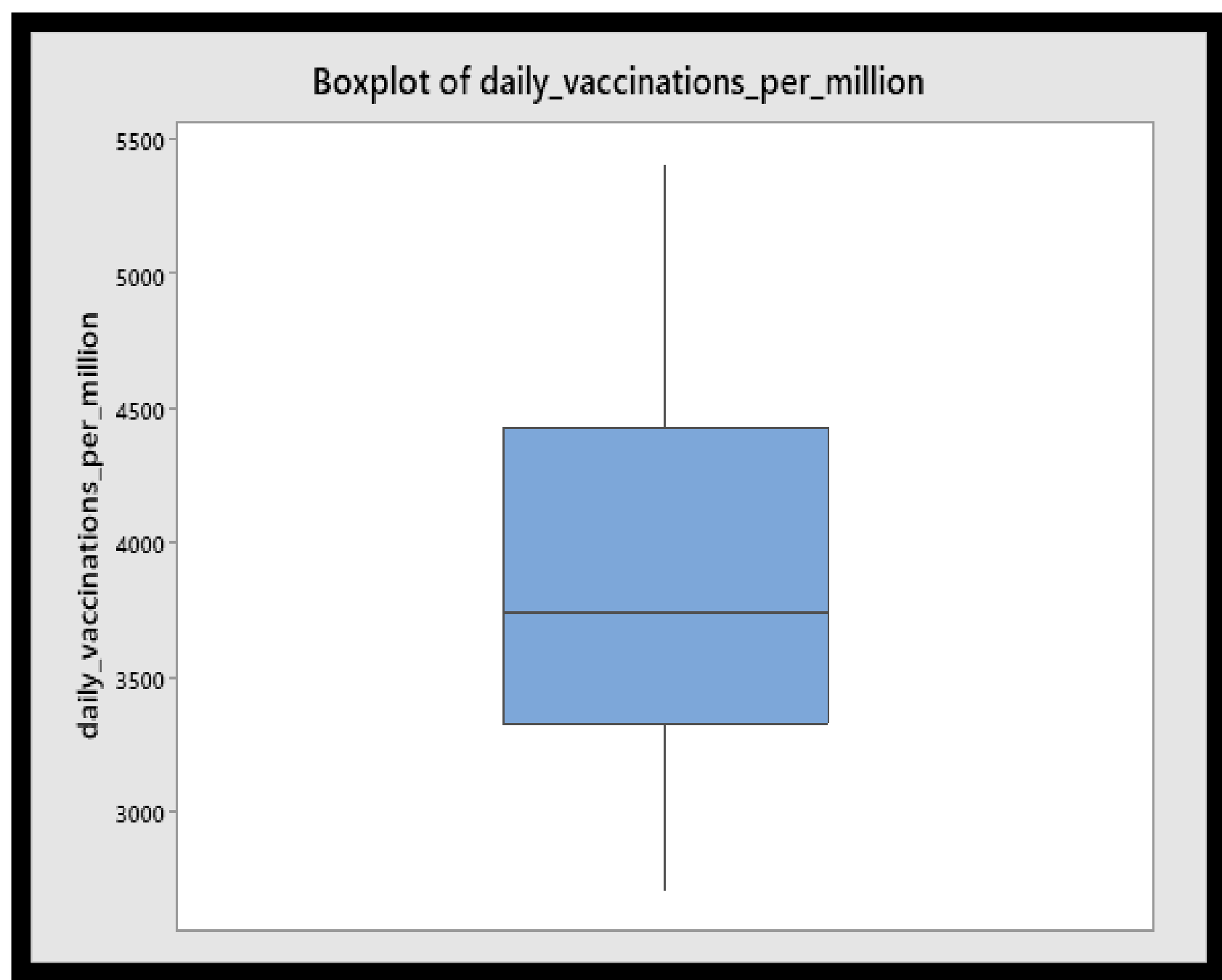
Pareto chart of Race in Central New York



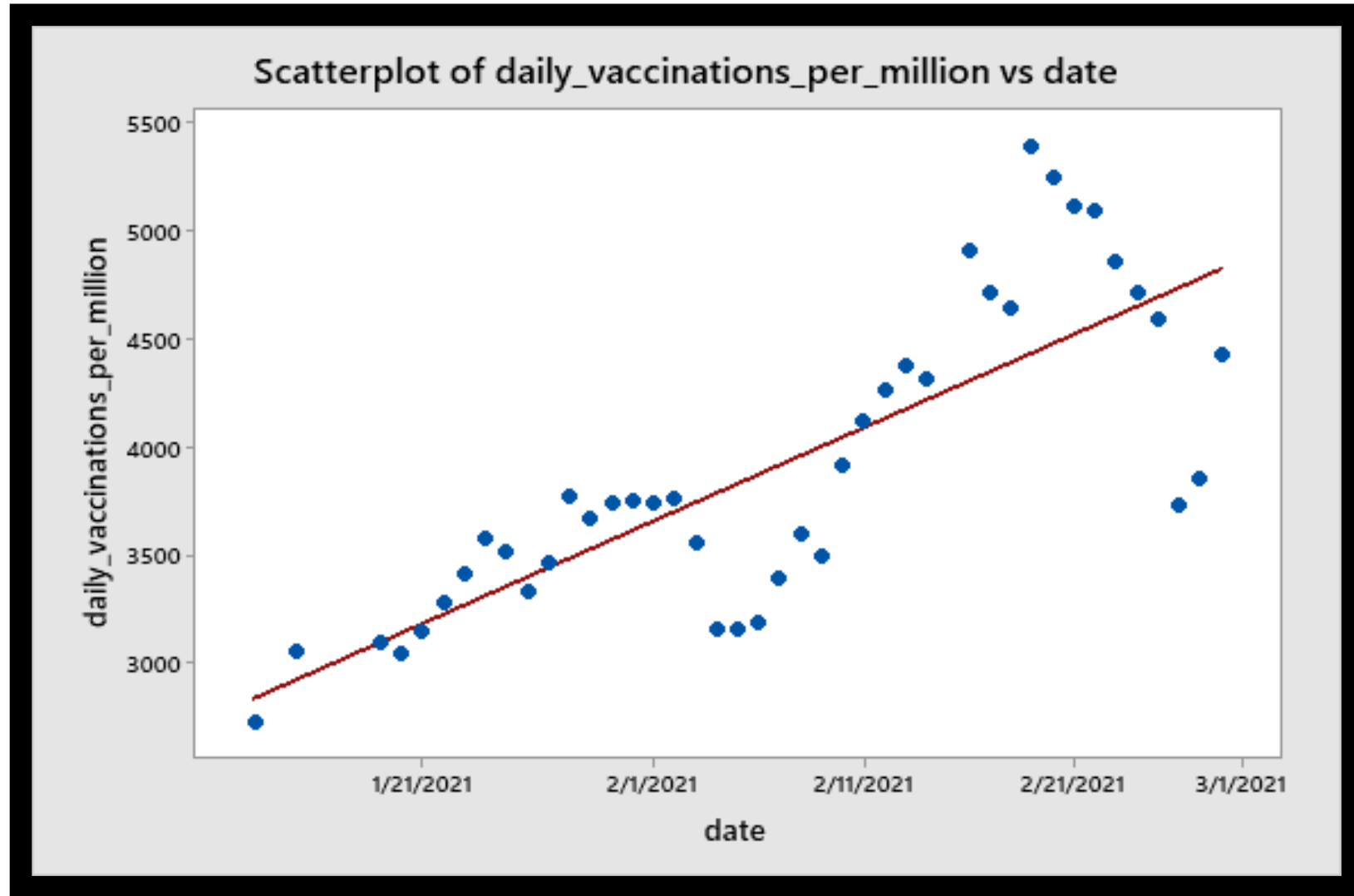
Pareto chart of Daily Vaccinations by Race in Central New York



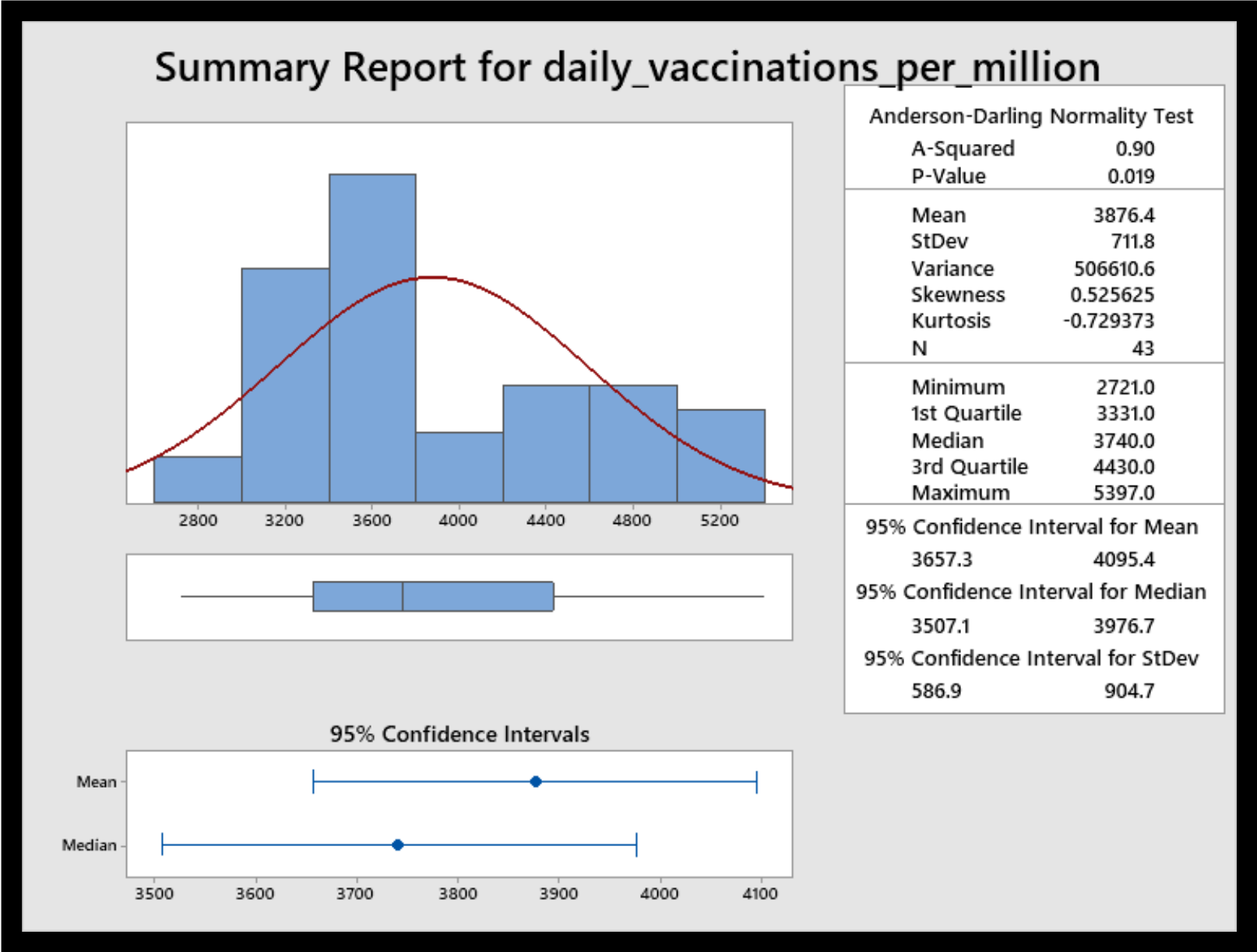
- Box-plot with a median of 3740, lower quartile of 3331 and upper quartile of 4430.
- The size of upper quartile is greater than the size of the lower quartile.



The scatterplot has a positive trend line which shows a positive relationship between the two variables Date and daily vaccinations per million.



Summary of all statistics of the vaccine rollout process data.



Thank You!