

Setting up manufacturing to prepare for Pathogen X

Subhash Kapre
Inventprise

Lessons Learnt

Manufacture in a few geographies led to a hold up of vaccine supply to all.
Failure of a company in producing Vaccines in time led to a huge shortage.

Remedy would be establishing manufacturing plants in all continents

Manufacturing globally

This would pose the problem of :

Plant design,
Intellectual Property ,
Manufacturing Technology,
Availability of manpower for production,
Quality assurance,
fill finish shortages,
Raw material and consumable shortages,

Calculating the total manufacturing capacities as well as regional capacities needed

The instant supply of vaccine doses to all is not possible.

The generation of such a huge volume in an instantaneous time is not possible.

How do we remedy this?

A mathematical model of calculating the number of plants and their capacity needs to be evolved

With an end goal of cumulative supply globally.

From the cumulative calculated supply per month would indicate how to calculate acceptable months

within which the supply would need to be made.

Schedule of Global Supply

A consensus on the capacity and time of supply from all governments would help mitigate any global

left out feeling

This would help globally accept the total time element for supply to all.

Technology of manufacture: Global Franchises

Amongst various platforms we have two platforms that were able to generate immunity

The m RNA and Adeno vector Vaccines

Inactivated Vaccines.

However, both the platforms have their pros and cons from long term immunity and efficacy point of view
in a constant mutation environment.

It would be worthwhile to look at a new platforms picking up from established vaccine manufacturing models we have
giving long term immunity with efficacy. e. g. Conjugate vaccines.

New adjuvants have helped enhance vaccine efficacy. e. g. Sars- Cov-2 vaccine based on protein adjuvant complex.

Plant Capacity and design

Having addressed modeling of the key points we then look at plant design.

plant automation established by Inventprise could help reduce the need of manpower manufacturing expertise.

This would help manage uniformly such a manufacture in all regions.

Secondly this could make manufacturing at low cost by utilizing the plant continuously 24/7

If a similar technology is deployed in a continent a central quality control could be established
attached to several small units

Also connecting should be fill finish stations.

We could identify existing force plus establish new units to make the planned numbers per month

Legal issues

Several manufacturing units spread in a continent would help localize and mitigate legal issues of liability on any adverse events

Universal supply would unhindered

New support manufacturing units

Establishing support companies by licensing them for supplying raw material, disposables, consumables etc.

Model of numbers would have to synchronize with the manufacturing unit numbers and their capacity.

Current manufacturers could be motivated to create their franchises.

We also need to understand the global availability of materials to make these items.

The disposable plants will create enormous plastic waste, so consideration of reusable plant machinery maybe a solution.

Efficient Global Communications

Sub- bodies managing continent wise operational requirements with a central body of the sub bodies would help

Reach out quickly to all.

Longer distances of Transportation of finished vaccine doses will be minimized
This will free from Global and country wise transportation barriers.

Thank you

Thank You

