

# Distribution Warehouse Allocator

## Application of Supply Chain Principles to Pandemic Planning

### Vaccine Distribution Model

DRAFT v2.0 2021-02-01

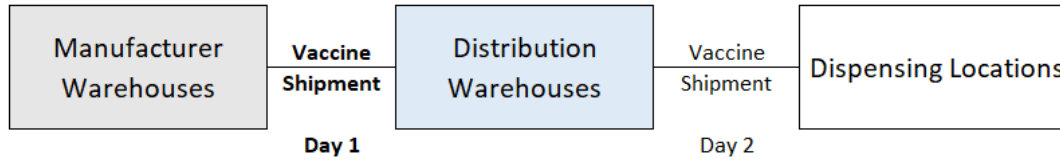
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### ALLOCATION TO DISTRIBUTION WAREHOUSES

Manufacturer Warehouse	Pfizer Warehouse 1	1
Number of Distribution Warehouses	50	
Number of Vaccine Doses per Box	975	
Day Number	1	

Supply at Manufacturer Warehouse	2250	boxes
Percent Reserve	0	
Reserve Stock	0	boxes
Supply to Allocate	2250	boxes



Allocate Vaccine to Distribution Warehouses

Day 1 Total Allocation	2250	boxes
Expected Shortages	42.97	
Expected Stock Opportunities Missed	109.97	
Fill Rate	0.9803	

Distribution Warehouse	Target probability of not running out of stock	Total Stock on Hand and in-transit (boxes)	Cumulative Vaccine Usage (Before Day 1)	Total Cumulative Estimated Vaccine Demand on Days 1 to 3 (boxes)				Day 1 Allocation	Day 1 Expected Shortages	Day 1 Expected Stock Opportunities Missed	Cumulative Vaccine Demand End of Day 3			
				Min	Most Likely (Mode)	Max	Expected (Mean)				Min	Most Likely (Mode)	Max	Expected (Mean)
1 AL Warehouse	0.91	0	0	26	33	40	33	34	0.71	1.71	26	33	40	33
2 AK Warehouse	0.91	0	0	4	5	6	5	5	0.00	0.00	4	5	6	5
3 AZ Warehouse	0.91	0	0	39	49	59	49	51	0.84	2.84	39	49	59	49
4 AR Warehouse	0.91	0	0	16	20	24	20	21	0.25	1.25	16	20	24	20
5 CA Warehouse	0.91	0	0	210	263	316	263	272	5.05	14.05	210	263	316	263
6 CO Warehouse	0.91	0	0	30	38	46	38	39	0.88	1.88	30	38	46	38
7 CT Warehouse	0.91	0	0	19	24	29	24	25	0.40	1.40	19	24	29	24
8 DE Warehouse	0.91	0	0	5	6	7	6	6	0.00	0.00	5	6	7	6
9 FL Warehouse	0.91	0	0	114	143	172	143	148	2.73	7.73	114	143	172	143

Manufacturers | Distribution Warehouses | Dispensing Locations | Vaccination Plan | **Allocation to DistribWarehouses** | Allocation for Dispensing | Simulation Input | Simulation Output

# Dispensing Locations Allocator

## Application of Supply Chain Principles to Pandemic Planning

### Vaccine Distribution Model

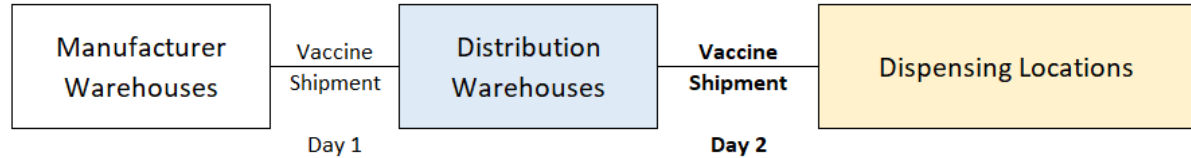
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### ALLOCATION TO DISPENSING LOCATIONS

i	Distribution Warehouse	NH Warehouse	29
t	Number of Dispensing Locations	50	
	Day Number	2	
	Supply at Distribution Warehouse	10000	doses
	Percent Reserve	0	
	Reserve Stock	0	doses
	Supply to Allocate	10000	doses
	Box Size	100	doses



Allocate Vaccine to Dispensing Locations

Day 2 Total Allocation	10000
Expected Shortages	1258
Expected Stock Opportunities Missed	1208
Fill Rate	0.8748

j	Dispensing Location	Target probability of not running out	Stock on Hand	Cumulative Vaccine Usage	Estimated Vaccine Demand on Day 2				Day 2 Allocation	Day 2 Expected Shortages	Day 2 Expected Stock Opportunities	Cumulative Vaccine Demand End of Day 2			
					Min	Most Likely (Mode)	Max	Expected (Mean)				Min	Most Likely (Mode)	Max	Expected (Mean)
1	NH Dispensing Location 1	0.91	0	0	1850	1950	2050	1950	1900	52	2	1850	1950	2050	1950
2	NH Dispensing Location 2	0.91	0	0	1850	1950	2050	1950	1900	52	2	1850	1950	2050	1950
3	NH Dispensing Location 3	0.91	0	0	1850	1950	2050	1950	1900	52	2	1850	1950	2050	1950
4	NH Dispensing Location 4	0.91	0	0	1850	1950	2050	1950	1900	52	2	1850	1950	2050	1950
5	NH Dispensing Location 5	0.91	0	0	20	50	80	50	0	50	0	20	50	80	50
6	NH Dispensing Location 6	0.91	0	0	20	50	80	50	0	50	0	20	50	80	50
7	NH Dispensing Location 7	0.91	0	0	20	50	80	50	0	50	0	20	50	80	50
8	NH Dispensing Location 8	0.91	0	0	20	50	80	50	0	50	0	20	50	80	50
9	NH Dispensing Location 9	0.91	0	0	20	50	80	50	0	50	0	20	50	80	50
10	NH Dispensing Location 10	0.91	0	0	20	50	80	50	0	50	0	20	50	80	50
11	NH Dispensing Location 11	0.91	0	0	20	50	80	50	0	50	0	20	50	80	50

# Simulation

## SIMULATION RESULTS

Distribution Warehouse:	NH Warehouse	# of Days:	208
Select Replication:	1		
Select Location:	Total for All Dispensing Locations		

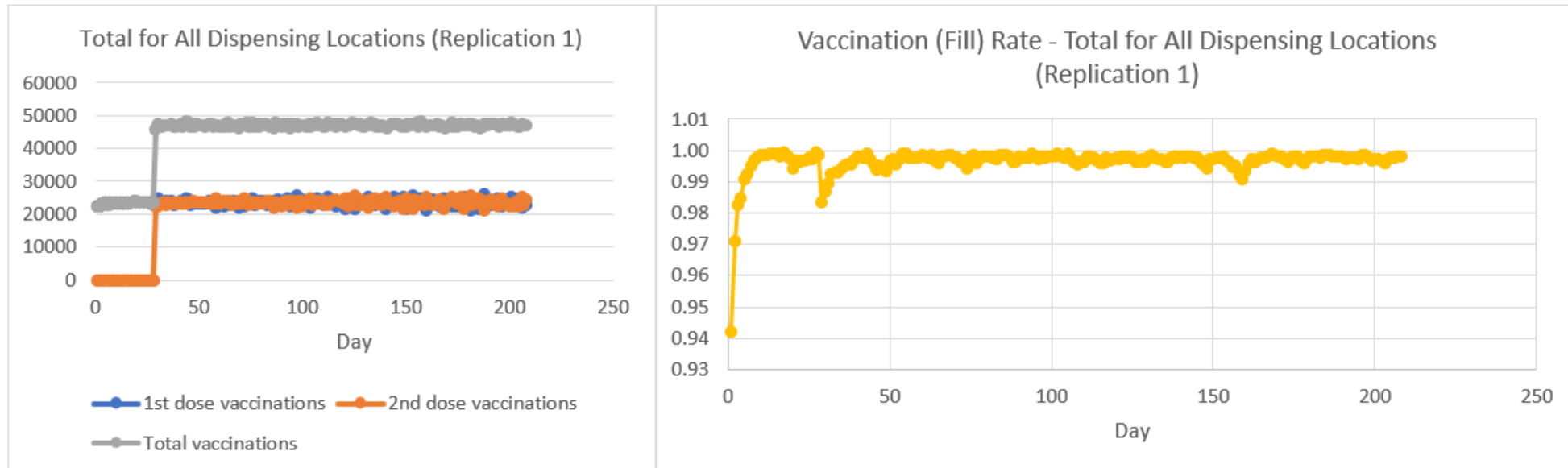
### 1st dose protection

4,237,765	persons
383,602,795	person-days

### 2nd dose protection

4,234,600	persons
382,970,096	person-days

vaccinations	8,472,365	missed vaccination person-days	130,231,129
allocations	8,476,231	missed vaccination opportunities	1,452,324
		shortages	24,014



# Simulation Graphs

