Distribution Warehouse Allocator

Application of Supply Chain Principles to Pandemic Planning

Vaccine Distribution Model DRAFT v2.0 2021-02-01

Change the contents of green cells. Other cells contain formulas.

ALLOCATION TO DISTRIBUTION WAREHOUSES

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

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

Manufacturer Warehouses → Vaccine Shipment (Day 1) → Distribution Warehouses → Vaccine Shipment (Day 2) → Dispensing Locations

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	

i	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 DRAFT v2.0 2021-02-01

Change the contents of green cells. Other cells contain formulas.

ALLOCATION TO DISPENSING LOCATIONS

i	Distribution Warehouse	NH Warehouse	29
	Number of Dispensing Locations	50	
t	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

Manufacturer Warehouses — Vaccine Shipment — Day 1 — Distribution Warehouses — **Vaccine Shipment** — **Day 2** — Dispensing Locations

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 Min	Most Likely (Mode)	Max	Expected (Mean)	Day 2 Allocation	Day 2 Expected Shortages	Day 2 Expected Stock Opportunities	Cumulative Vaccine Demand End of Day 2 Min	Most Likely (Mode)	Max	Expe (Me
1	NH Dispensing Location 1	0.91	0	0	1850	1950	2050	1950	1900	52	2	1850	1950	2050	19
2	NH Dispensing Location 2	0.91	0	0	1850	1950	2050	1950	1900	52	2	1850	1950	2050	19
3	NH Dispensing Location 3	0.91	0	0	1850	1950	2050	1950	1900	52	2	1850	1950	2050	19
4	NH Dispensing Location 4	0.91	0	0	1850	1950	2050	1950	1900	52	2	1850	1950	2050	19
5	NH Dispensing Location 5	0.91	0	0	20	50	80	50	0	50	0	20	50	80	5
6	NH Dispensing Location 6	0.91	0	0	20	50	80	50	0	50	0	20	50	80	5
7	NH Dispensing Location 7	0.91	0	0	20	50	80	50	0	50	0	20	50	80	5
8	NH Dispensing Location 8	0.91	0	0	20	50	80	50	0	50	0	20	50	80	5
9	NH Dispensing Location 9	0.91	0	0	20	50	80	50	0	50	0	20	50	80	5
10	NH Dispensing Location 10	0.91	0	0	20	50	80	50	0	50	0	20	50	80	5
11	NH Dispensing Location 11	0.91	0	0	20	50	80	50	0	50	0	20	50	80	5

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

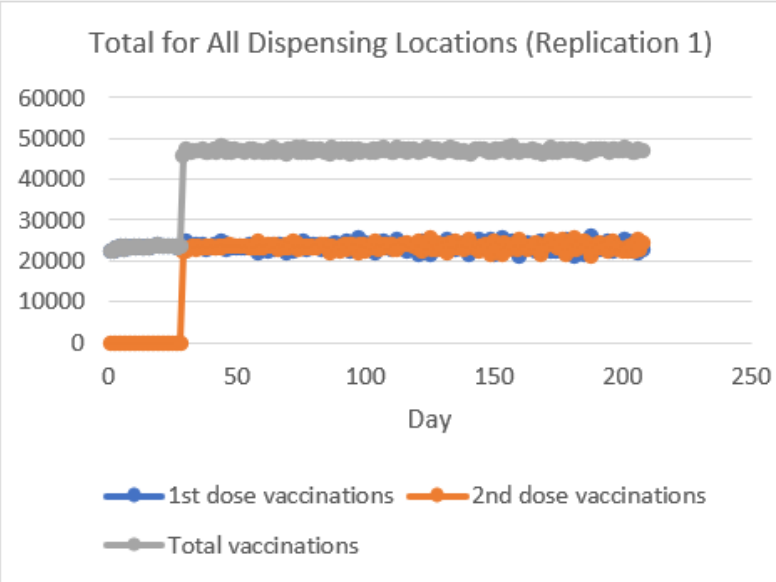
Simulation

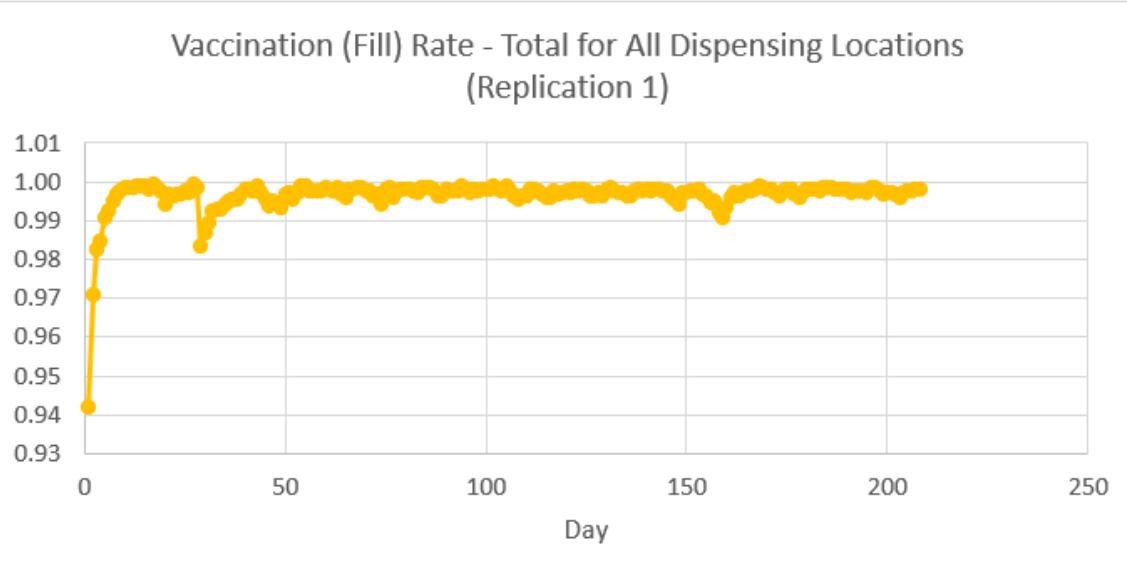
SIMULATION RESULTS

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

	1st dose protection		2nd dose protection	
	4,237,765	persons	4,234,600	persons
	383,602,795	person-days	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