



A Baseline Assessment of Vaccine Demand & Access in HELP USA’s New York City Shelters

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Executive Summary

Introduction

HELP USA began administering Covid-19 vaccines in its shelters in coordination with government social service and medical providers in January 2021, when the Department of Homeless Services notarized the distribution of the vaccine in all New York City shelters. In March 2021, the single dose Johnson & Johnson vaccine also became available in New York City shelters. However, its distribution was momentarily halted due to a brief moratorium the following month. Anecdotal evidence suggested that the moratorium may have engendered a ‘hesitancy’ among HELP shelter residents to receive any Covid-19 vaccine. In this context, we designed a survey to identify rates of vaccine awareness, demand and access in HELP shelters. The objective of this survey was:

- (1) to facilitate needed and urgent action on vaccine distribution and coverage in shelters where deficits may have existed; and
- (2) to serve as a baseline indicator needed to establish measurable goals of vaccine coverage to ensure progress on increasing vaccine access for residents over short- and longer-term periods in the future.

The following analysis is based on responses to questions on vaccine awareness, access and assistance needs across 12 HELP shelters that had an average census of 1625 persons throughout the survey period from April to June 2021. HELP shelter staff conducted the survey, designed by our research team, that comprised the following questions:

1. Are shelter residents aware that the Covid-19 vaccine is available at HELP shelter locations?
2. Have they attempted to access the Covid-19 vaccine at a HELP shelter location?
3. Have they received the first dose of the Covid-19 vaccine?
 - 3.b. Did they receive the first dose of the Covid-19 vaccine at a HELP shelter location?
4. Have they received the second dose of the Covid-19 vaccine?
 - 4.b. Did they receive the second dose of the Covid-19 vaccine at a HELP shelter location?
5. Would residents desire assistance from Help USA staff to avail the vaccine?

Key Findings

The Covid-19 survey was completed by 36% of HELP shelter residents across twelve shelters (n=587; census =1625). 89% were aware that Covid vaccines were available at their shelters. However, only 36% had attempted to access vaccines at HELP shelter sites and just 26% of surveyed residents wanted social workers to assist them to avail vaccines.

Low demand partially explains the low rate of vaccine coverage among surveyed shelter clients relative to the NYC general adult population: 24% of surveyed residents were fully vaccinated – they either received both of two-dose Pfizer or Moderna vaccines or the single-dose Johnson & Johnson - compared to 54% of NYC adults during the survey period.

45% of surveyed residents had received one of the two-dose vaccines compared to 63% of New York City adults. However, the share of fully vaccinated homeless residents in this survey was just over double the rate of the city's total homeless shelter residents (10.9%), as reported by the government to media sources in May.¹

The low coverage rate relative to the general population, and higher coverage rate relative to the city's homeless shelter population, indicates a need to identify better and underperforming shelters to understand, and possibly transfer, successes from shelters that had relatively better capacity to provide vaccines to other, potentially at-risk, shelters.

In this survey, shelter SEC exhibited a higher *capacity* to provide vaccines to its residents, relative to the total sample (52% received dose 1; 42% are fully vaccinated). Higher vaccine coverage rates in SEC were due to early successes in providing clients the first and second of the two dose vaccines in January, before the Johnson & Johnson vaccine was rolled out, briefly suspended and reapproved.

Shelter 107 was a risk shelter: only 11% of clients had attempted to avail the vaccine (vs. 36% sample rate), 21% had received dose 1 (vs. 45% sample rate), 8% had received dose 1 at a HELP shelter (vs. sample of 28%), 18% received dose 2 (vs. 24% sample rate) and just 5% received the second dose at a HELP shelter (vs. 20% sample rate).

Five shelters (Meyer, Keener, Belleclaire, BWC and Franklin) did not vary at statistically significant levels from the total sample population. These shelters can be identified as potential baseline shelters, across key vaccine demand and access indicators, to measure progress on increasing demand and coverage rates under existing conditions. Clarke Thomas exhibited significantly higher rates of dose 1 coverage relative to the surveyed population. This shelter therefore exhibited a *potential capacity* to provide partial vaccine coverage. Finally, significantly lower shares of Creston and Audobon residents had attempted to avail the vaccine and desired assistance to access them, respectively, and are, therefore, identified as potential at-risk locations for shortfalls in vaccine coverage.

¹ a. NYC homeless shelter full vaccination resident rate (May 10): <https://nypost.com/2021/05/10/only-about-10-percent-of-nyc-shelter-residents-have-been-vaxxed/amp/> ; b. NYC adult population full vaccination rate (June 4): <https://www1.nyc.gov/site/doh/covid/covid-19-data-vaccines.page>

Recommendations & Outcomes

SEC, Times Square, and to a lesser degree, Clarke Thomas shelters provided their populations relatively wider vaccine coverage. These *capacity* shelters were especially successful during early stages of the two-dose Pfizer & Moderna vaccine rollout. In this context, HELP submitted findings of this survey to DHS in July 2021 and recommended reinstating two-dose vaccines in shelters. In August 2021, DHS announced that they would offer the two dose Pfizer in each of its shelters.

Increasing vaccine options may increase vaccine demand and access. We recommend increase demand and access to the highest *probabilistic* range of success across indicators identified by this report's binomial distribution analysis. These success ranges include:

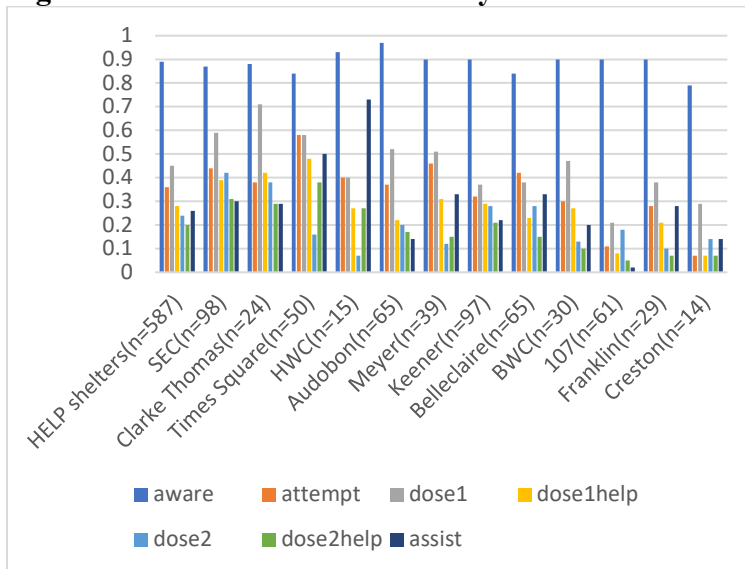
attempts	dose1(overall)	dose1(help shelters)	dose2 (overall)	dose2 (help shelters)	desire for assistance
36%-52%	45%-60%	28%-45%	24%-45%	20%-34%	26-38%

Policymakers can increase the above rates to rates that fall at least within these ranges by 3 commitments:

- (1) benchmark goals of risk and baseline shelters to at least *capacity* shelter rates, such as SEC and Times Square, in each demand indicator (vaccine *attempts* and desire for *assistance*) and access indicator (*dose1*, *dose1-help*, *dose 2*, *dose2- help*).
- (2) Prioritize immediate and short-term responses in *risk* and *potential-risk* shelters with identified low demand and vaccine access rates (i.e., increase vaccine attempts to *at least* the highest limit of probabilistic range of success in 107 (11%-22%) and Creston (7%-21% over the near-term)
- (3) Identify factors responsible for relatively high demand and vaccine coverage in *capacity* shelters SEC, Clarke Thomas, and Times Square (with exception to Times Square's *dose 2* rates) to consider how knowledge and systems may be transferred to and implemented in *risk* shelters across the city that have deficits in these areas.

Summary of Findings

Figure 1: Success rates of all survey indicators



A total 587 clients in 12 HELP shelters, 36% of HELP's shelter population, completed the survey. While 89% of surveyed residents (x=520) were aware that the vaccine was available at HELP shelters, 36% had attempted to avail vaccines at these sites (**figure 1**).²

Low vaccine demand during the April – June 2021 period indicates a need to understand how information on Covid-19 risks and vaccine benefits was and continues to be disseminated or acquired in shelters. Understanding the role information has in shelters on awareness and choice may reveal opportunities to increase this period's 60% demand shortfall³ to increase vaccine coverage among HELP shelter residents over near and long-term windows. [add Covid-19 update context]

Covid-19 testing had occurred in HELP shelters consistently from the beginning of the pandemic through the survey period. The cumulative test positivity rate over this 15-month period was nearly 4% (**figure 3**). The low desire for assistance (26%) (**figure 1**) amid robust testing efforts (**figure 2**) also underscores a need to explore demand-side factors affecting vaccine offtake.

² n=number surveyed, or sample size; x = number of successes, or 'yes' responses to specific questions

³ Expressed as 1 minus the ratio of residents who have attempted to access the vaccine at HELP shelters (n=212) in proportion to the total number aware (n=520)

Figure 2: Total Covid-19 Tests Administered at HELP Shelters (March '20 – June '21)

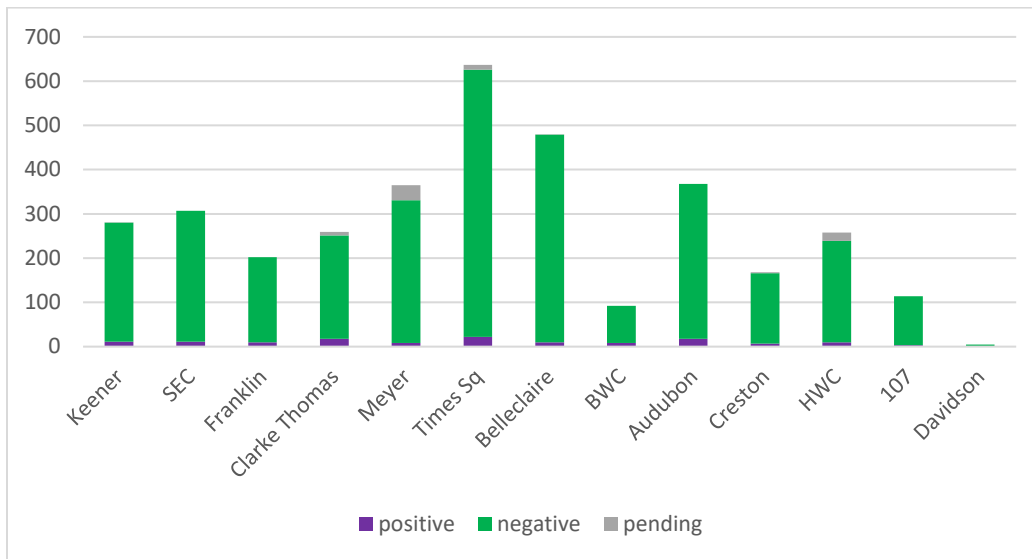
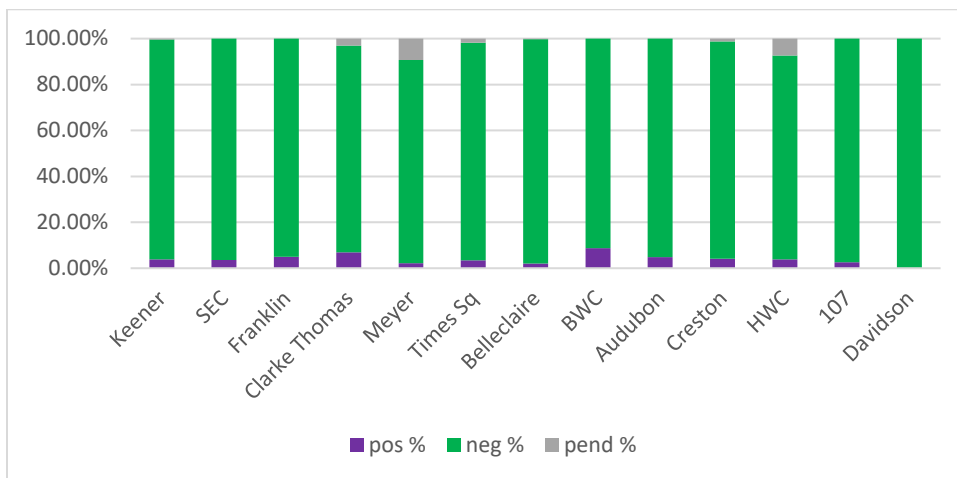


Figure 3: Covid-19 Cumulative Test Positivity Rates (March '20 – June '21)



At that demand level, 24% (x=142) of the survey’s shelter residents were fully vaccinated⁴ and 20% had received their second doses at HELP shelters (**figure 1**). These rates were double the all-NYC full vaccination shelter resident rate (10.9%) but less than half the all-NYC adult rate (54%) during the survey period⁵ (**figures 4 and 5**).

Overall, 45% of residents (x=267) received the first dose of the vaccine; 28% (x=167) did so at HELP shelters. In comparison, 63% of NYC adults received the first dose by the first week of June 2021.⁶ (**figure 1**).

Figure 4: Dose 1 Vaccine Rates: HELP Shelters vs all-NYC adult population

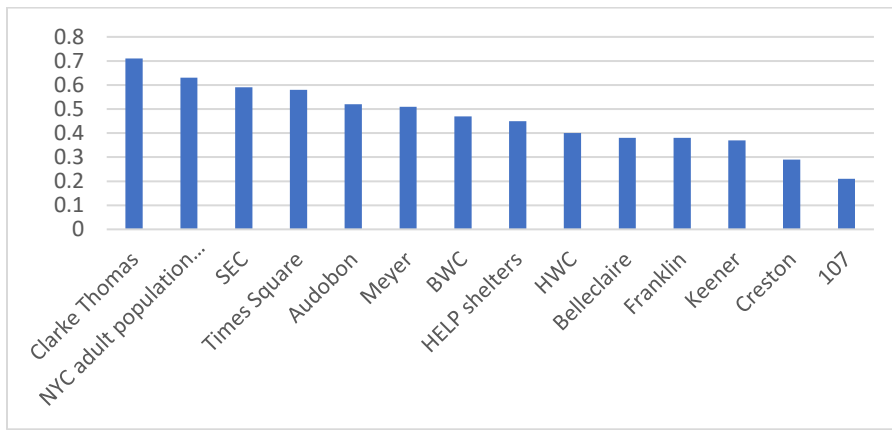
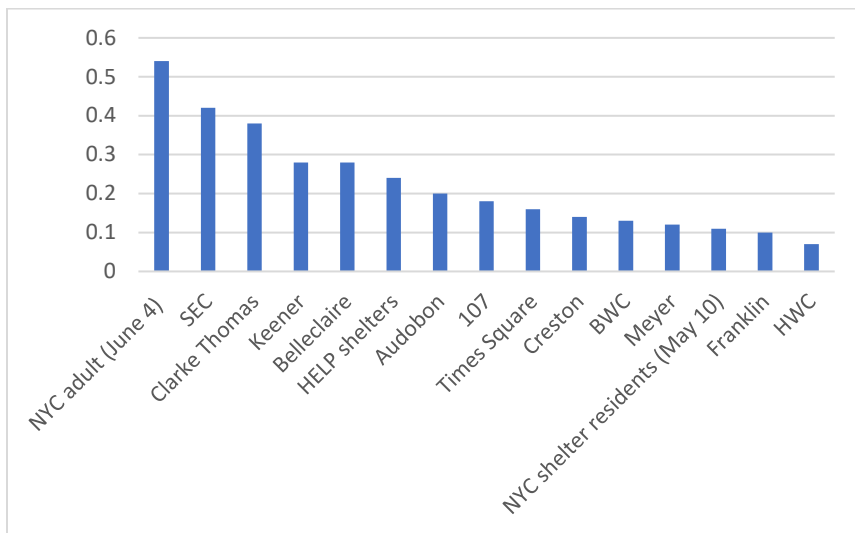


Figure 5: Dose 2 Vaccine Rates: HELP Shelters vs. all-NYC adult and NYC shelter populations



⁴ Full vaccination is defined by residents who received both of two-dose vaccines or the single dose Johnson & Johnson vaccine)

⁵ Ibid at 1.

⁶ Ibid at 3b.

SEC had higher vaccine rates relative to the survey sample. In this context, SEC exhibited a *capacity* to better provide vaccines to its residents. That is, significantly higher shares of SEC residents had attempted to avail the vaccine and had received each dose overall at HELP locations, respectively (*dose1*, *dose1-help*, *dose 2* and *dose2-help* indicators, footnote) in relation to the sample (**Figures 1, 4 and 5**). Among SEC’s 98 residents -- 17% of the total sample, and 49% of SEC residents - 59% had received doses 1 and 42% were fully vaccinated. In comparison, 45% and 24% of all surveyed HELP shelter residents had received dose 1 and dose 2, respectively.

Shelter 107 exhibited significantly lower success rates across key indicators compared to the surveyed population. For example, among this shelter’s 61 residents (81% of its shelter census; 10 % of the surveyed population), only 11% had attempted to avail the vaccine (vs. 36% sample rate), 21% had received dose 1 (vs. 45% sample rate), 8% had received dose 1 at a HELP shelter (vs. sample of 28%), 18% had received dose 2 (vs. 24% sample rate) and just 5% had received the second dose at a HELP shelter (vs. 20% sample rate). In this context, Shelter 107 exhibited a significant risk of not being able to adequately provide vaccine to its residents.

Harnessing Findings: Methodology for Assigning Baseline Indicators

How do we identify baseline indicators of vaccine demand and coverage rates among (1) the overall population, (2) high-capacity shelters and (3) risk shelters? Baseline indicators should meet the following criteria. They must:

- (i) accurately represent shelter resident demand and access at the time of the survey (April – June 2021). This is necessary to increase shortfalls in vaccine demand (*attempt* and desire for *assistance*) and access (*dose1*, *dose1-help*, and *dose2-help*) that were present at that time. It is also necessary to understand why such shortfalls existed to better secure and deliver resources, including information, to shelters in need. Such resources may have been present in better performing shelters and may possibly be shared with locations in need.
- (ii) serve as a reliable reference point to gauge near and long-term improvements for specific shelters and across the total of twelve shelters that were surveyed.

Table 1: Baseline rates for surveyed HELP shelters

	attempt	dose1	dose1help	dose2	dose2help	assist
total (actual)	0.36	0.45	0.28	0.24	0.2	0.26
SEC	0.44	0.59	0.39	0.42	0.31	0.26
C Thomas	0.36	0.71	0.3	0.38	0.20-0.22	0.26
T Square	0.58	0.58	0.48	0.24	0.38	0.5
HWC	0.36	0.45	0.18-0.28	0.24	0.2	0.73
Audobon	0.36	0.45	0.28-0.29	0.24	0.18-0.2	0.14
Meyer	0.36	0.45	0.28-0.35	0.24	0.18-0.2	0.26
Keener	0.36	0.45	0.28-0.30	0.24	0.18-0.25	0.26
Belleclaire	0.36	0.45	0.23-0.28	0.24	0.15-0.20	0.26

BWC	0.36	0.45	0.28	0.24	0.2	0.26
107	0.11	0.21	0.08	0.24	0.05	0.02
Franklin	0.36	0.45	0.20-0.28	0.24	0.16-0.20	0.26
Creston	0.07	0.45	0.22-0.28	0.24	0.18-0.22	0.26

Compared to the survey sample, shelter 107 exhibited statistically significant shortfalls in vaccine demand and access; SEC and Time Square performed far better in each of these areas (shelters with p-values<0.05 indicated in bold, **Table 1**). Exceptions, however, included dose 2 rates in 107 (18%) and Times Square (38%) and the desire for assistance in SEC 30% (**figure 1**).

Table 2: Dose 1 at HELP shelters: comparison between April-June'21 survey and HELP database (March'20-June'21)

shelter	survey (Apr-Jun'21)			HELP database (Mar'20-June'21)		
	n	x	p	n*	x	p
HELP shelters	587	165	0.28	1625+	354	0.22
SEC	98	38	0.39	200	50	0.25
Clarke Thomas	24	10	0.42	125	38	0.3
Times Square	50	24	0.48	260	78	0.3
HWC	15	4	0.27	85	15	0.18
Audobon	65	14	0.22	90	26	0.29
Meyer	39	12	0.31	120	42	0.35
Keener	97	28	0.29	175	52	0.3
Belleclaire	65	15	0.23	260	11	0.04
BWC	30	8	0.27	45	n/a	n/a
107	61	5	0.08	75	3	0.04
Franklin	29	6	0.21	140	28	0.2
Creston	14	1	0.07	50	11	0.22

*Rate does not reflect BWC
+census average

The April-June 2021 survey's total sample *dose-1 help*, and *dose2-help* rates (28% and 20%) were higher at statistically significant levels than rates of 11 of the survey's 12 shelters (22% and 16%) that were recorded by HELP's March '20-June '21 database (**tables 2 and 3**). The survey's SEC & Times Squares *dose1-help*, and *dose2-help* rates were higher and shelter 107's rates were significantly lower compared to (i) all residents and (ii) these specific shelters in the HELP March '20-June '21 database (**tables 2 and 3**).

In this context, the survey indicated that SEC and Times Square exhibited greater *capacities*, compared to other shelters, to provide vaccines to their residents while 107 exhibited the risk of

not effectively being able to do so under then-present conditions. This could have also indicated that shelter 107 could increasingly fall behind in the future.

Table 3: Dose 2 at HELP shelters: comparison between April-June'21 survey and HELP database (March'20-June'21)

shelter	survey dose2-help			vs.	HELP longitudinal dose2-help		
	n	x	p		n	x	p
HELP shelters	587	116	0.2		1625+	255	0.16*
SEC	98	30	0.31		200	28	0.14
Clarke Thomas	24	7	0.29		125	27	0.22
Times Square	50	19	0.38		260	61	0.23
HWC	15	4	0.27		85	10	0.12
Audobon	65	11	0.17		90	16	0.18
Meyer	39	6	0.15		120	24	0.2
Keener	97	20	0.21		175	44	0.25
Belleclaire	65	10	0.15		260	8	0.03
BWC	30	3	0.1		45	n/a	n/a
107	61	3	0.05		75	3	0.04
Franklin	29	2	0.07		140	23	0.16
Creston	14	1	0.07		50	11	0.22

*Rate does not reflect BWC
+ census average

A closer look at better and underperforming shelters in comparison to other shelters, the overall survey sample and HELP's March 2020-June 2021 database enables us to identify baseline rates for specific shelters in the following manner (**table 1**):

- all survey sample indicator rates (*attempt, dose 1, dose 1-help, dose 2, dose 2-help and assist*) can serve as baselines for Meyer, Keener, Belleclaire, BWC and Franklin shelters. Baseline 'ranges' for *dose1-help and dose2-help rates* are derived from a comparative analysis of the survey sample and HELP data base rates of these indicators. Additionally, each survey vaccine access indicator rate (*dose 1, dose 1-help, dose 2, dose 2-help*) can

serve as baseline indicators for HWC, Creston and Audobon shelters. That is because actual success rates of these shelters across these indicators do not differ at statistically significant levels from the sample. For that reason, these are *baseline shelters*.

- As mentioned, SEC and Times Square performed better than the survey sample at significantly higher levels across five indicators, and shelter 107 fared much lower than the survey sample at significantly lower levels across five indicators. This means that SEC and Times Square’s own survey rates across these indicators can serve as their respective baselines. Exceptions include *dose 2* for Times Square and 107. In both shelters, the sample *dose 2* share may serve as their baselines for this indicator. For this reason, SEC and Times square are *capacity shelters*; 107 is a *risk shelter*.
- Clarke Thomas’ own *dose1* and *dose1-help* indicators, at the time of the survey, varied significantly from the survey sample and can therefore serve as their baselines in these areas. However, this shelter’s *attempt*, *dose2* and *dose2-help* rates did not significantly vary from the survey sample. The survey sample’s *attempt*, *dose2*, and *dose2-help* rates may thus serve as Clarke Thomas’s baselines for these respective indicators. In this context, Clarke Thomas is a *mid-capacity* shelter.
- Creston’s *attempt* rate and Audobon’s *assist* rate were significantly lower than the survey sample. These shelters did not vary at statistically significant levels from the overall sample in other indicators. Therefore, those other survey sample rates serve as baselines for these shelters. In this regard, these are *baseline shelters* that exhibit potential *risk* characteristics.

Based on this framework of baseline, *capacity*, *risk*, *mid-capacity*, and *baseline with potential risk* shelters, we may isolate divergences and convergences of shelter-specific vaccine demand and access rates to, then, assess probabilities of achieving higher success rates in these areas, which is necessary to establish measurable goals of delivering the Covid-19 vaccine to homeless shelter residents as effectively and swiftly as possible.

Implications of Findings: Using Baselines to Set and Meet Objectives of Increasing Vaccine Demand and Access⁷

Increasing demand for vaccines attempts to avail the vaccine

The highest probable increase in vaccine demand – as a function, here, of ‘attempts’ to avail it - across the surveyed 12 shelters at conditions present from April to June 2021 is 16%. We arrive at this estimate by applying the sample vaccine demand rate (36%) as the baseline to 8 shelters;

⁷ Please see Appendices 1 & 2 for tables that correspond to each indicator discussed in following subsections

the vaccine demand rate of 58% and 44% to high-capacity Times Square and SEC; and 11% and 7% demand rates to both *risk* and *potential risk* shelters 107 and Creston.

This *potential* vaccine demand rate of 52% is nearly the mid-point between the attempt rates of the survey's two better performing, or capacity, shelters: SEC (44%) and Time Square (58%).

The largest future increase in the number of residents attempting to avail the vaccine (15) would most likely occur in Keener. This shelter's April-June 2021 *actual* attempt rate (32%) was nearly equal to, and not statistically less than, the total sample's attempt rate. Its large sample size (n=97; 16.5% of all surveyed residents) was also potentially representative of that shelter (55% of its shelter census were surveyed). The largest rate of increase (27%) may potentially occur in BWC, where 67% of its clients were surveyed.

Unsurprisingly, the lowest increase of 2, under conditions present during the survey, may occur in Creston, a potential risk shelter. But it should also be noted that only 14 of its clients - 28% of its census - was surveyed.

In this context shelter 107, a risk shelter, presents a significant challenge. Its 61 surveyed residents accounted for 81% of its census, the highest among all shelters. Its low, 11% attempt rate is also its baseline rate and indicates that we can only expect a future 11% increase in this indicator. It is imperative to identify low demand in this population and to also identify factors responsible for higher demand in SEC (nearly half its census was surveyed) and Times Square (only 19% of its census was surveyed) may be applied to this shelter.

Increasing demand for vaccines: shelter resident desire for assistance

There was a wide variation across shelters in rates of clients that desired assistance from social workers to obtain the vaccine: from 78% in HWC (a *baseline shelter*), 50% in Times Square (*capacity shelter*), 14% in Audubon (*baseline/potential risk*) and only 2% in 107 (*risk shelter*).

If we apply the total survey's rate of 26% to the remaining eight shelters, a future total 'desire' rate of 38% is possible.

It is essential to examine why demand for assistance is low in both 107, where vaccine coverage is also significantly low, and in Audobon, where coverage rates are lower than the sample and the HELP database but not at statistically significant levels. However, the 65 surveyed residents in Audobon represented 72% of its census. The highest percentage increase in this demand indicator may, under the survey conditions, arise in Creston (24% increase), Franklin (19%) and Belleclair (19%).

Increasing Covid-19 vaccine access: dose 1

The highest probable increase in the number of clients who may avail *dose1* is 84, which would raise the sample rate to nearly 60% --- nearly equivalent to this survey's *capacity* shelters, Times Square and SEC. We arrive at this possibility by applying the survey sample *dose 1* rate (45%) as

the baseline to 8 shelters; capacity shelter *dose 1* rates of 71%, 59%, and 58% to Clarke Thomas, SEC, and Times Square shelters, respectively; and the risk shelter dose 1 rate of 21% to 107.

HWC's potential 27% increase must be qualified. Its survey sample (n=15) represented only 18% of its census, this survey's lowest census share. It appears that there is limited scope to increase *dose 1* coverage in Clark Thomas. Its high vaccine rate (71%) occurred among, also, a potentially limited sample (19% of its clients were surveyed). It is necessary to consider increasing sample sizes of both shelters in follow-up surveys. This would also gauge the strength of Clark Thomas' perceptible current success rate.

There should also be a focus on increasing *dose 1* rates in *risk* shelter 107 and *near-risk* shelters, Keener and Creston. In 107, there exists a 52% probability of increasing its current rate of 21% to a best-case 36% (see '**optimal x range probabilities' for shelters in tables in appendices**). Keener and Creston's actual vaccine rates were not significantly lower than the sample. In this context, their lower success rates compared to the sample's rate with the sample rate being applied as their baselines, indicates a wider range of probability of increasing their dose 1 rates, respectively. There is therefore a need to identify why clients in Keener and Creston may not have availed the vaccine and the scope in these shelters for improvement.

Increasing Covid-19 vaccine access: dose1-help

28% of surveyed clients received the first dose of the vaccine at HELP shelters, which is significantly higher than the 22% of clients recorded by HELP's database. The highest expected coverage rate is 45%. We arrive at this scenario by applying the survey sample rate to identified *baseline* shelters, statistically higher rates (48% and 39%) to Times Square and SEC, and the low 8% rate to shelter 107. The HELP data base recorded a 30% *dose-1 help* rate for Clarke Thomas, which is significantly lower than the 42% identified by the survey. In this context, 30% is Clarke Thomas' baseline rate (**highlighted in table 1**).

Half of *baseline* shelters have actual *dose-1 help* rates that are almost equal to the overall sample. These shelters reveal opportunities to increase coverage. Keener's actual *dose1-help* rate of 29% is just 1% higher than the sample rate. Given its large sample size and census ratio (55%), there is a 40% probability of maintaining or increasing its coverage up to 41% (x=40). Potential increases in coverage rates in remaining sample-representative *baseline* shelters are 27%-53% (HWC; x range=4-8); 31%-51% (Meyer; x range=12-20) and 27%-50% (BWC, x range= 8-15).

High risk shelter 107 can expect to double its low coverage rate – from 8% to 16%. But near-risk *baseline* shelters Franklin and Creston can increase their coverage rates substantially, from 21% and 7%, respectively, to 44% and 42%. Creston's small sample size and census ratio mandate an increase in those numbers in near and long term follow ups.

Increasing Covid-19 vaccine access: dose 2

The total sample's *dose-2* rate (24%) can be applied as the baseline to all shelters excluding SEC. This shelter's 42% coverage rate was significantly higher than the sample. Under these conditions, the highest probable increase in fully vaccinated shelter residents is up to 45%, which is slightly higher than the SEC coverage rate during the survey.

Eight baseline shelters had coverage rates lower than 24%. Five shelters had coverage rates that were about half or far less than half that sample rate (HWC, 7%; Franklin, 10%; Meyer 12%; BWC, 13%; and Creston, 14%). These are *potential-risk* shelters in this category. At given conditions, the range of potential increase is wide because the coverage rates of these shelters during the survey were lower, though not significantly, from the sample rate. The largest probable increases in coverage can occur in the sample's *high-risk* shelter, 107, from 18% to 44% (x range = 11 – 27); followed by Meyer (12% to 53%; x-range= 5-20). Time Square's *dose 2* coverage rate was below the total sample rate. But taking the sample rate as its baseline presents an opportunity to increase its rate of coverage during the survey from 16% to 42%.

The significant number of *potential-risk* shelters in this critical indicator of full vaccination should be addressed by examining how relative overall success in providing *dose1* can also be undermined by not being able to provide full vaccination at these specific sites.

Increasing Covid-19 vaccine access: dose 2-help

20% of surveyed residents received their second vaccine at HELP shelter locations. This is the baseline rate for all shelters, excluding SEC (31%) and Times Square (38%) and shelter 107 (5%). Under these conditions, the highest probable increase is to 34%– the mid-point between the two high-capacity SEC and Times Square Shelters.

Baseline shelter Audobon had an actual *dose2-help* rate that was nearly equal to the baseline (20%) This shelter exhibits a 76% probability of maintaining its 17% coverage rate (x=11) or increasing it to 31% (x=20). Audobon also had a large sample size (n=65), which accounted for 72% of its census.

As across other indicators, shelter 107 can only minimally expect to increase its coverage – from 5% to 13%.

The access to and availability of second or single dose vaccines at specific locations (in this case, HELP shelters) was an important indicator. There is a need to consider transferring across the three critically identified sites in this case. This would entail identifying reasons for SEC's relatively large vaccine coverage, opportunities to increase coverage in Audobon given its representativeness, and deficits in 107 that may require the implementation of models used in SEC.

Recommendations for Objectives

The few shelters that provided relatively wider coverage of vaccines to its population during the early stage of the two-dose Pfizer & Moderna vaccine rollout (SEC, Times Square, and to a lesser degree, Clarke Thomas) benefited from larger uptake of two dose vaccines before the introduction of the Johnson & Johnson regimen. HELP submitted findings of this survey to DHS in July 2021 and recommended reinstitute two-dose vaccines. In August 2021, DHS announced that they would be offering the two dose Pfizer in each of its shelters. In this context, policymakers should strive to increase vaccine demand and access to the highest range of success across indicators identified in the preceding sections:

attempts	dose1	dose1 help	dose2	dose2help	desire for assistance
36%-52%	45%-60%	28%-45%	24%-45%	20%-34%	26-38%

To accomplish the goal of increasing vaccine demand and access, the following recommendations include:

- (1) benchmark goals of risk and baseline shelters to *current capacity shelter* rates across demand (vaccine attempts) and access indicators (dose1, dose1-help, dose 2, dose2- help) as follows:
 - shelter attempts (SEC, 44%)
 - dose 1 coverage (Times Square, 58% and SEC,59%)
 - dose1help (Times Square, 48%)
 - dose2 (SEC, 42%)
 - dose2help (SEC, 31% and Times Square 38%)
- (2) Initiate immediate and short-term priority responses in **risk** and **near-risk shelters** with identified low demand and vaccine access rates. These priority responses should strive to:
 - Increase vaccine attempts to *at least* the highest limit of probabilistic range of success in 107 (11%-22%) and Creston (7%-21%)
 - Increase overall and HELP shelter specific dose 1 and 2 vaccine coverage in:

shelter	profile	dose1	dose1 help	dose2	dose2help
107	risk	21%-36%	5%-16%	24%*-44%	5%-13%
Franklin	baseline-near				
	risk+	45%-66%	28%-45%	24%-41%	20%-34%
Creston	baseline-near				
	risk+	45%-64	28%-44%	24%-43%	20%-50%

*=near risk for dose 2

+lower limits represent sample rate as baseline

- Increase full vaccination rates (dose 2) in baseline shelters with risk attributes in this category:

shelter	profile	dose2
Times Square	baseline%	24%-42%
HWC	baseline-near risk+	24%-60%
Meyer	baseline-near risk	24%-53%
BWC	baseline-near risk	24%-53%

%=capacity for all other indicators

- Increase overall dose 1 vaccination rates in baseline shelters with risk attributes in this category:

shelter	profile	dose1
Keener	baseline-near risk	45%-53%
Belleclair	baseline-near risk	45%-57%

- (3) Identify factors responsible for relatively high demand and vaccine coverage in capacity shelters SEC and Times Square (with exception to Times Square's *dose 2* rates) to consider how knowledge and systems may be transferred to and implemented in at risk shelters across the city that have deficits in these areas.

Appendix 1 – Covid-19 Vaccine Demand

Table 4: Shelter residents’ vaccines attempt rates & projections (attempts) (capacity and risk shelters in bold)

shelter	n	x (success)	p actual	p baseline	optimum range [x]	optimum range(p)	highest p
Times Square	50	29	0.58	0.58	29-36,2	0.55	0.72
SEC	98	43	0.44	0.44	43-53,2	0.53	0.54
Clarke Thomas	24	9	0.38	0.36	9-14,2	0.51	0.58
HWC	15	6	0.4	0.36	6-9,2	0.45	0.6
Audobon	65	24	0.37	0.36	24-32,2	0.47	0.49
Meyer	39	18	0.46	0.36	18-25,2	0.12	0.64
Keener	97	31	0.32	0.36	31-45	0.81	0.46
Belleclaire	65	27	0.42	0.36	27-35,2	0.21	0.55
BWC	30	9	0.3	0.36	9-17,3	0.8	0.57
Franklin	29	8	0.28	0.36	8-16,3	0.88	0.55
107	61	7	0.11	0.11	7-14,3	0.51	0.33
Creston	14	1	0.07	0.07	1-3,2	0.62	0.21
All shelters	587	212	0.36	0.36	212-306		0.52

Table 5: Shelter residents’ desire for assistance from HELP social workers to avail vaccines

shelter	n	x (success)	p actual	p baseline	opt range [x]	opt range(p)	highest p
HWC	15	11	0.73	0.73	11-14,2	0.61	0.93
Times Square	50	25	0.5	0.5	25-32,2	0.54	0.64
SEC	98	29	0.3	0.26	29-34,0,8	0.22	0.35
Clarke Thomas	24	7	0.29	0.26	7-11,1	0.43	0.46
Meyer	39	13	0.33	0.26	13-16,1	0.18	0.41
Keener	97	21	0.22	0.26	21-38,4	0.86	0.39
Belleclaire	65	22	0.33	0.26	22-29,2	0.1	0.45
BWC	30	6	0.2	0.26	6-13,3	0.82	0.43
Franklin	29	8	0.28	0.26	8-13,2	0.48	0.45

Creston	14	2	0.14	0.26	2-7,5	0.9	0.5
Audobon	65	9	0.14	0.14	9-13,1,5	0.5	0.2
107	61	1	0.02	0.02	1-4,3	0.7	0.06
total	587	154	0.26	0.26	154-224		0.38

Appendix 2 – Covid-19 Vaccine Access & Coverage

Table 6: Shelter residents’ overall dose 1 vaccination rates & projections(dose1)

shelter	n	x (success)	p actual	p baseline	opt range [x], standard deviation from x	opt range(p)	highest p
Clarke Thomas	24	17	0.71	0.71	17-19, 1	0.52	0.79
SEC	98	58	0.59	0.59	58-68, 2	0.41	0.69
Times Square	50	29	0.58	0.58	29-36,2	0.55	0.72
HWC	15	6	0.4	0.45	6-10,2	0.71	0.67
Audobon	65	34	0.52	0.45	34-38,1	0.13	0.58
Meyer	39	20	0.51	0.45	20-26,2	0.26	0.67
Keener	97	36	0.37	0.45	36-51,3	0.9	0.53
Belleclaire	65	25	0.38	0.45	25-37,3	0.86	0.57
BWC	30	14	0.47	0.45	10-16, 3	0.5	0.53
Franklin	29	11	0.38	0.45	11-19,3	0.82	0.66
Creston	14	4	0.29	0.45	4-9,5	0.89	0.64
107	61	13	0.21	0.21	13-22, 3	0.52	0.36
total	587	267	0.45	0.45	267-351		0.6

Appendix 1 (continued):

Table 7: Shelter residents’ dose 1 vaccination rates & projections at HELP sites (dose1-help)

shelter	n	x (success)	p actual	p baseline	optimum range [x], s.d. from x	opt range(p)	highest p
107	61	5	0.08	0.08	5-10,2	0.54	0.16
BWC	30	8	0.27	0.28	8-15,3	0.63	0.5
Clarke Thomas	24	10	0.42	0.3	10-15,2	0.15	0.63
SEC	98	38	0.39	0.39	38-48,2	0.54	0.49

Times Square	50	24	0.48	0.48	24-30,2	0.52	0.6
HWC	15	4	0.27	0.18-0.28	4-8,2	0.28-0.63	0.53
Franklin	29	6	0.21	0.20-0.28	6-13,3	0.54-0.85	0.45
Creston	14	1	0.07	0.22-0.28	1-6,3	0.92-0.95	0.43
Belleclaire	65	15	0.23	0.23-0.28	15-26,3	0.54-0.83	0.4
Audobon	65	14	0.22	0.28-0.29	14-25	0.88-0.89	0.38
Keener	97	28	0.29	0.28-0.30	28-40,3	0.46-0.63	0.41
Meyer	39	12	0.31	0.28-0.35	12-20,3	0.41-0.75	0.51
total	587	165	0.28		165-256		0.45

Table 8: Shelter Residents Overall Dose 2 Vaccination Rates & Projections (dose2)

shelter	n	x (success)	p actual	p baseline	opt range [x], s.d. from x	opt range(p)	highest p
SEC	98	41	0.42	0.42	41-51,2	0.54	0.52
Clarke Thomas	24	9	0.38	0.24	9-13,2	0.98	0.54
Times Square	50	8	0.16	0.24	8-21,3	0.94	0.42
HWC	15	1	0.07	0.24	1-9,5	0.98	0.6
Audobon	65	13	0.2	0.24	13,23,3	0.8	0.35
Meyer	39	5	0.12	0.24	5-20,6	0.97	0.53
Keener	97	27	0.28	0.24	27-39	0.21	0.4
Belleclaire	65	18	0.28	0.24	18-25,2	0.28	0.38
BWC	30	4	0.13	0.24	4-16,5	0.95	0.53
107	61	11	0.18	0.24	11-27,5	0.9	0.44
Franklin	29	3	0.1	0.24	3-12,4	0.98	0.41
Creston	14	2	0.14	0.24	1-6,3	0.95	0.42
total	587	142	0.24	0.24	142-262		0.45

Table 9: Shelter residents' dose 2 vaccination rates & projections at HELP sites (dose2-help)

shelter	n	x (success)	p actual	p baseline	opt range [x], s.d. from x	opt range(p)	highest p
SEC	98	30	0.31	0.31	30-40,2	0.55	0.41
Clarke Thomas	24	7	0.29	0.20-0.22	7-11,2	0.19-0.24	0.46

Times Square	50	19	0.38	0.38	19-29,3	0.55	0.58
HWC	15	4	0.27	0.2	4-7,2	0.28-0.35	0.47
Audobon	65	11	0.17	0.18-0.2	11-20,3	0.64-0.76	0.31
Meyer	39	6	0.15	0.2	6-11,2	0.69-0.75	0.28
Keener	97	20	0.21	0.20- 0.25	20-28	0.29-0.71	0.29
Belleclaire	65	10	0.15	0.15- 0.20	10-19,2	0.52-0.85	0.29
BWC	30	3	0.1		3-12,4	0.95	0.4
107	61	3	0.05	0.05	3-8,3	0.59	0.13
Franklin	29	2	0.07	0.2	2-10,4	0.95-0.97	0.34
Creston	14	1	0.07	0.20- 0.22	1-7,4	0.94-0.96	0.5
total	587	116	0.2	0.2	116-202		0.34