Outcomes of a Telehealth Visit Model to Deliver Tecovirimat for Mpox in NYC

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BACKGROUND

- The 2022 mpox outbreak reached nearly 100 new infections per day at its peak in New York City.
- Untreated mpox can cause significant morbidity, particularly in immunocompromised patients.
- Tecovirimat has antiviral activity against orthopoxviruses and is available through the Centers for Disease Control and Prevention (CDC)'s expanded access investigational new drug protocol for treatment of mpox
- Early in the outbreak, patients had difficulty accessing timely treatment due to limitations in provider capacity.
- We report outcomes of a telehealth model, created by NYU Langone Health (NYULH), NYC Health + Hospitals/Bellevue (Bellevue), and the NYC Department of Health and Mental Hygiene, to expand treatment access.

Table 1. Demographics, clinical characteristics and outcomes for patients treated with tecovirimat in NYC via telehealth, June 19 – August 8, 2022

Covariate	HIV-Positive (N=32)	HIV-Negative (N=35)	Total (N=69)[a]	p-value
	N (%)	N (%)	N (%)	
Age, median (IQR)	40 (35-44)	34 (30-38)	36 (32-42)	**0.006**
MSM[b]	26 (81.2)	29 (82.9)	57 (82.6%)	1.00
Race/ethnicity[c]				0.968
African-American/Black	4 (12.5)	2 (5.7)	6 (8.7)	
White	12 (37.5)	17 (48.6)	30 (43.5)	
Hispanic	4 (12.5)	3 (8.6)	7 (10.1)	
Asian	1 (3.1)	2 (5.7)	3 (4.3)	
American Indian/Alaska Native	1 (3.1)	1 (2.9)	2 (2.9)	
Some other race	7 (21.9)	7 (20.0)	15 (21.7)	
Most recent CD4 (cells/microL), median (IQR)[d]	581 (479, 776)			
Undetectable viral load (<200 copies/mL)[e]	19 (95%)[f]			
On HIV PrEP[g]		27 (77.1)		
Any STI testing				0.921
Yes	17 (53.1)	20 (57.1)	38 (55.1)	
No	14 (43.8)	13 (37.1)	28 (40.6)	
Unknown	1 (3.1)	2 (5.7)	3 (4.3)	
Days from Symptom Onset to Specimen Collection (IQR)	4 (2, 5)	5 (2, 6)	4 (2, 6)	0.311
Days from Symptom Onset to Treatment (IQR)	8 (7, 10)	11 (8, 14)	9 (7, 12)	**0.011**
Retention in Care				
1 Visit During Treatment	22 (75.9)	30 (88.2)	54 (83.1)	0.143
1 Visit Post-Treatment	20 (62.5)	21 (60.0)	41 (59.4)	1.00
Recovery at 30 days post-treatment				0.552
Yes, without sequelae	14 (43.8)	12 (34.3)	26 (37.7)	
Yes, with sequelae	6 (18.8)	11 (31.4)	18 (26.1)	
Unknown	12 (37.5)	12 (34.3)	25 (36.2)	
Time to improvement on treatment, median (IQR)	2 (2, 3)	3 (2, 4)	3 (2, 4)	0.157

Table abbreviations:
IQR, interquartile range
MSM, man (cisgender or transgender) who reported having sex with men
PrEP, pre-exposure prophylaxis
STI, sexually transmitted infection

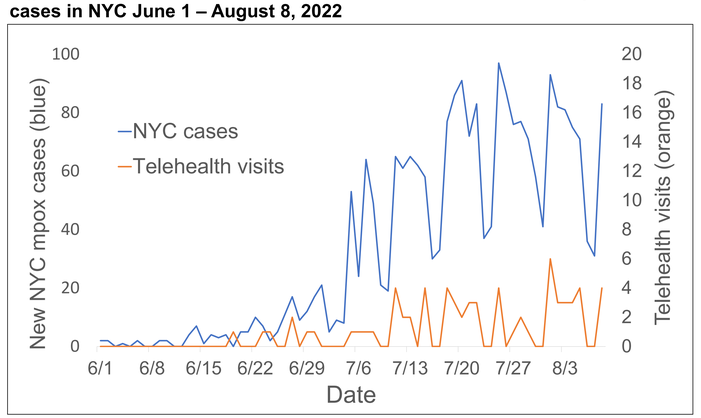
[a] Two patients did not have HIV status documented
[b] All other charts had unknown MSM status, there were no patients who were not MSM by risk factor
[c] Patients who identified as both Hispanic and Black or Hispanic and White classified as Hispanic; 2 charts were marked multiracial and 4 not documented
[d] Last recorded CD4 by chart review within 6 months included 18 known cases out of 32, with 14 not recorded.
[e] Last recorded VL by chart review within last 6 months included 20 known cases out of 32, with 12 not recorded. 19 out of 20 known cases were undetectable.
[f] Amongst those with available VL data.
[g] The remainder were not on PrEP

A telehealth model for tecovirimat prescription early in the NYC mpox outbreak provided patients with access to treatment when prescriber capacity was limited.

METHODS

- Telehealth visits (video or telephone) for mpox began in mid-June 2022 at NYULH and Bellevue
- We report on all patients treated with tecovirimat for mpox infection through an initial telehealth visit between June 19 and August 8, 2022.
- Demographic and clinical characteristics, as well as post-treatment outcomes were collected and reported by HIV status.
- We compared characteristics and outcomes by HIV status using Fisher's Exact test and Kruskal-Wallis (for age).

Figure 1. Telehealth visits at NYULH and Bellevue and incident mpox cases in NYC June 1 – August 8, 2022



RESULTS

- Of 83 patients treated, 69 (83%) received tecovirimat through a telehealth visit.
- All patients were of male sex at birth; 68 (99%) were cisgender male.
- People with HIV comprised 46% of the cohort and were older than those without HIV (p=0.006), but did not differ significantly by race/ethnicity or MSM status.
- Of those with HIV, median CD4 was 581 cells/microL (IQR 479-776), and 95% had a viral load <200 copies/mL.
- Number of telehealth visits increased over time as incident NYC cases increased, as shown in **Figure 1**.
- Mucosal membrane involvement (including proctitis, pharyngitis, urethritis, and conjunctivitis) was the most common indication for treatment (86% of our cohort).
- Days from symptom onset to treatment was shorter for HIV-positive patients vs. HIV-negative patients (8 days vs. 11 days, p=0.01).
- We did not observe any tecovirimat treatment failures, hospitalizations or deaths in this cohort.
- Retention in care, recovery at 30 days, and time to improvement was similar between groups.

CONCLUSIONS

- During the recent mpox outbreak, a telehealth model for tecovirimat expanded access to treatment among our cohort, which included a high proportion of patients with HIV.
- Telehealth is one important tool, among others, that can be safely and efficiently implemented during an infectious disease outbreak, particularly when prescriber capacity is limited.
- Patient access to technology, technical literacy, broadband connectivity, and private space are potential issues that could limit uptake of a telehealth treatment delivery model.
- Further research is needed to compare telehealth and other models of care, and examine equity in access, long term clinical outcomes, and patient experience.

ADDITIONAL KEY INFORMATION

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