Favorable clinical outcomes but disproportionate burden of COVID-19 on Latinx residents among hospitalized patients at San Francisco's public health hospital
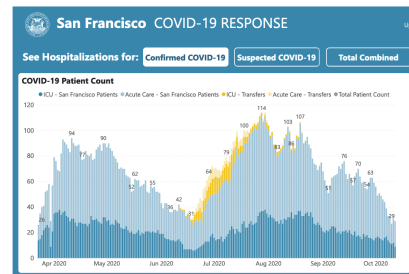
Vivek Jain,[1] Lillian B. Brown,[1] Carina Marquez,[1] Luis A. Rubio,[1] Natasha Spottiswoode,[2] Bethlehem Churnet,[2] Katherine Brooks,[2] Mengyu Zhou,[2] Timothy Muldoon,[2] Carolyn M. Hendrickson,[3] Adithya Cattamanchi,[3] Antonio Gomez,[3] Brian Haas,[4] Edwin D. Charlebois,[5] Annie Luetkemeyer,[1] Camille Beauduy,[1] Monica Gandhi,[1] Diane Havlir,[1] Sumant Ranji,[2]* and Lisa G .Winston[1,2]*

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Objectives

- San Francisco implemented one of the earliest shelter-in-place public health mandates in the U.S., with a flattened epidemic curve and among lowest case and death rate in the U.S.
- After an initial "Wave 1" of cases and decline, a "Wave 2" occurred in July-September, 2020
- We describe demographics, clinical features and outcomes of COVID-19 patients admitted to a public health hospital in a high population density city with an early containment response spanning two distinct waves

San Francisco's biphasic epidemic:
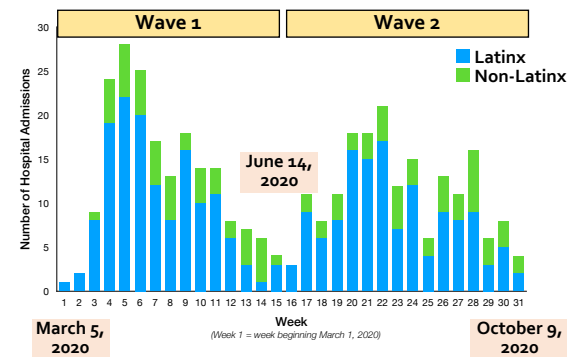Number of hospitalized patients citywide, March 23 - October 12, 2020

Source: https://data.sfgov.org/stories/s/wmxr-upyn

Conclusions

(1) SF has had an unusual biphasic epidemic curve to date. Early aggressive response may have curtailed spread, but insufficient mitigation in Latinx community: we observed a starkly disproportionate burden on Latinx patients.

Methods

- We analyzed all patients admitted to San Francisco General hospital with confirmed symptomatic SARS-CoV-2 pneumonia from epidemic start 3/5/20 to 10/9/20
- San Francisco General Hospital serves a network of >63,000 patients (32% Latinx, 24% Asian, 19% African American, 19% Caucasian)
- Demographic and clinical data through 10/9/2020 were abstracted from hospital records, including ICU and ventilator use, lengths of stay, and in-hospital deaths
- Detailed data on housing status and employment were abstracted on hospitalized patients through 5/18

Results: Hospital Admissions (n=371)

1. Similar to SF City, we saw a distinct two-wave series of hospitalizations, predominantly among Latinx individuals

(2) Among patients hospitalized at our public safety-net hospital, we had very favorable outcomes, including only 5% mortality. Younger patient ages, infrequent admissions from nursing facilities, and lack of a surge on hospital capacity likely contributed to outcomes.

(3) We saw robust participation in clinical trials and therapeutics in a vulnerable marginalized patient base.

Results: Demographics

2. SF COVID-19 inpatients were predominantly male, young, Latinx, Spanish speaking, with public insurance

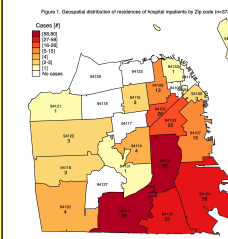| n=371	Wave 1 (n = 190)	Wave 2 (n = 181)	All (n = 371)	p
Sex				0.03
Male	130 (68.4%)	106 (58.6%)	236 (63.6%)	
Female	58 (30.5%)	75 (41.4%)	133 (35.8%)	
Transgender	1 (0.5%)	0	1 (0.3%)	
Non-binary	1 (0.5%)	0	1 (0.3%)	
Age group				0.04
20-44 years	73 (38.4%)	57 (31.5%)	130 (35.0%)	
45-54 years	46 (24.2%)	36 (19.9%)	82 (22.1%)	
55-64 years	42 (22.1%)	45 (24.9%)	87 (23.5%)	
65-74 years	16 (8.4%)	21 (11.6%)	37 (10.0%)	
75-84 years	8 (4.2%)	16 (8.8%)	24 (6.5%)	
>= 85 years	5 (2.6%)	4 (2.2%)	9 (2.4%)	
Race/Ethnicity				0.2
Latinx/Hispanic	142 (74.7%)	133 (73.5%)	275	
African American	14 (7.4%)	15 (8.3%)	29	
Asian	14 (7.4%)	22 (12.2%)	36	
Caucasian/White	14 (7.4%)	5 (2.8%)	19	
Other/Unknown	6 (3.2%)	6 (3.3%)	12	
Primary language				0.2
English	55 (28.9%)	46 (25.4%)	101	
Spanish	124 (65.3%)	120 (66.3%)	244	
Other	11 (5.8%)	15 (8.2%)		
Insurance status				0.1
Medi-Cal (Medicaid)	36 (18.9%)	32 (17.7%)	68	
Medi-Cal pending	24 (12.6%)	15 (8.3%)	39	
SF Health Plan/ Healthy SF	74 (38.9%)	76 (42.0%)	150	
Medicare	30 (15.8%)	41 (22.7%)	71	
Commercial	11 (5.8%)	8 (4.4%)	19	
Uninsured	14 (7.4%)	5 (2.8%)	19	
Worker's Comp.	0	4 (2.2%)	4	

3. In Wave 2, Latinx population remained heavily impacted, but less male-predominant, and ages were older

Results: Housing/Work

4. COVID-19 inpatients lived in high density housing settings, and worked frontline essential jobs

Housing status (n=174)	Total (%)
Living alone	5 (3%)
Single family, 1 or 2-generation household	56 (32%)
Single family, >2-generation household	12 (7%)
Multi-family housing or living with unrelated others	64 (37%)
Skilled nursing facility/ treatment center	7 (4%)
Single room occupancy location/hotel	5 (3%)
Homeless shelter system	9 (5%)
Homeless living outdoors	8 (5%)
Jail	2 (1%)
Unknown	5 (3%)
Employment	
Restaurant/food service	26 (15%)
Construction/home service	17 (10%)
Cleaning	11 (6%)
Transportation	8 (5%)
Other	15 (9%)B
Unknown	57 (33%)
Unemployed	27 (16%)
Retired	9 (5%)

5. Most COVID-19 inpatients lived in historically Latinx or African American predominant zip codes

Results: Therapeutics

6. High participation in clinical trials overall. More dexamethasone, plasma, and trial options in Wave 2.

Therapeutic	Wave 1 (n = 190)	Wave 2 (n = 181)	All (n = 371)
Clinical Trials			
ACTT-1 (RDV vs. PBO)	20 (11%)	0	20 (5%)
ACTT-2 (RDV + BCN/PBO)	8 (4%)	2 (1%)	10 (3%)
ACTT-3 (RDV +/- IFN-β)	0	8 (4%)	8 (2%)
CAPRI (convalescent plasma vs. FFP)	3 (2%)	23 (13%)	26 (7%)
CAN-COVID (canakinumab vs. PBO)	4 (2%)	20 (11%)	24 (7%)
Participated in any trial	35 (18%)	60 (33%)	95 (26%)
Therapy via Routine care, Emergency Use Auth. (EUA), or Exp. Access			
Hydroxychloroquine	40 (21%)	0	40 (11%)
Remdesivir	13 (7%)	16 (9%)	29 (8%)
Convalescent Plasma	10 (5%)	24 (13%)	34 (9%)
Dexamethasone	0	52 (29%)	52 (14%)
Any therapy via routine care or EUA/EAP	20 (10.5%)	109 (60.2%)	129 (34.7%)
Any COVID-19 therapy	47 (25%)	113 (62%)	160 (43%)

Results: Key Clinical Outcomes

7. Overall favorable outcomes and low mortality

Outcome	Wave 1 (n = 190)	Wave 2 (n = 181)	All (n = 371)
ICU care (n, %)	52 (27%)	47 (27%)	99 (27%)
Median ICU LOS (IQR, d)	7 (2, 21)	9 (5, 17)	8.5 (3, 19)
Mech. ventilation (n, %)	32 (16.8)	28 (16%)	60 (16%)
Median vent. dur. (IQR, d)	15 (8, 23.5)	11 (5.5, 20.5)	13 (6.5, 22.5)
Extubated (n, %[intubated])	28/32 (88%)	19/28 (68%)	47/60 (78%)
Median hospital LOS (IQR, d)	4 (2, 10)	5 (3,10)	5 (3, 10)
Discharged from hospital (%)	176 (93%)	167 (92%)	343 (93%)
Transferred out to facility (%)	6 (3%)	4 (2%)	10 (3%)
Died (n, %)	8 (4%)	11 (6%)	19 (5%)