

Outcomes and Factors Associated with a SARS-CoV-2 Positive Test in Asymptomatic and Symptomatic Healthcare Workers of a Mexican Hospital Converted to Treat COVID-19 Patients.

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Abstract:

A hospital was converted to treat COVID-19 patients. Free in-site consultation and RT-PCR for detection of COVID-19 cases and asymptomatic carriers (ACs) was offered to healthcare workers (HCWs).

Of HCWs screened, 3.7% were ACs; 6 HCWs with negative screen results developed COVID-19. Half of symptomatic HCWs had COVID-19. Being a nurse was associated with being a COVID-19 case, especially if diabetic. A cluster of ACs in kitchen workers was found after identification of a COVID-19 case. Residing in affected districts was associated with COVID-19 cases and ACs. The hospital epidemic curve closely resembled that of the community.

Prevention and control of COVID-19 and ACs in HCWs must take into account factors present both inside and outside hospitals.

Background and methods:

A COVID-19 hospital surveillance program tracked its healthcare workers (HCWs) beginning in 03/16/2020. Testing for SARS-CoV-2 was done in symptomatic and asymptomatic HCWs to detect COVID-19 cases and asymptomatic carriers (ACs), respectively. Follow-up was given for at least 14 days.

A case-control study enabled the search for factors associated with being either a COVID-19 case or an AC. Analyses are summarized in tables 1 and 2, respectively. Results are updated to 05/21/2020.

Results:

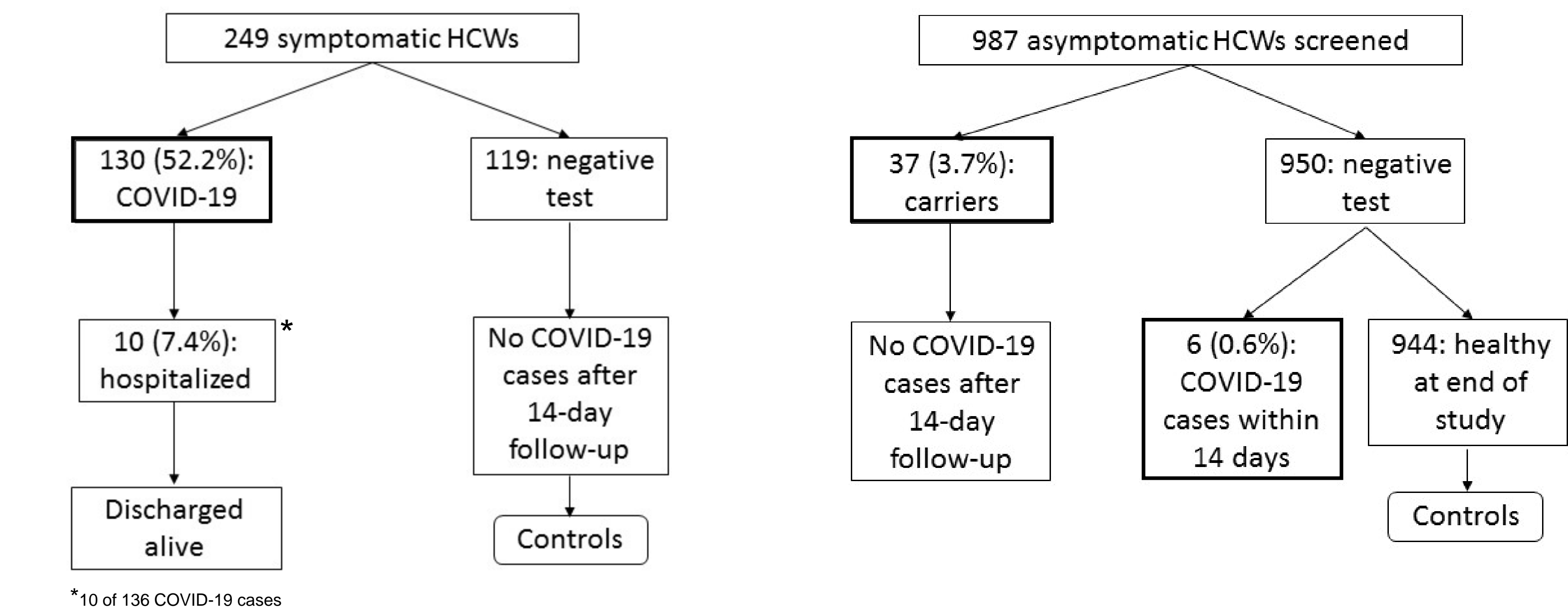


Table 1. Factors associated with COVID-19 cases.

Variable	Cases (n=136) [†]	Controls (n=1100) [†]
Male sex	52 (38.2)	464 (42.2)
Age, years (median, IQR)	37 (28.6-46.8)	33 (28-44)
Working category:		
Physician	29 (21.3)	409 (37.2)
Nurse*	70 (51.5)	323 (29.4)
Comorbidities:		
Diabetes mellitus*	6/133 (4.5)	9 (0.8)
Systemic hypertension	8/133 (6.0)	43 (3.9)
Obesity (BMI≥30)	19/121 (15.7)	175/1076 (16.3)
Working place:		
ICU/ER	15/130 (11.5)	357/1092 (32.7)
Wards (Nursery)*	50/130 (38.5)	108/1092 (9.9)
Wards (Physicians)	19/130 (14.6)	126/1092 (11.5)
Non-COVID-19 clinical area	22/130 (16.9)	219/1092 (20.0)
Non-clinical area	18/130 (13.9)	229/1092 (21.0)
Residence (Mexico City):		
Tlalpan	47/134 (35.1)	501 (45.5)
Xochimilco	21/134 (15.7)	105 (9.5)

*Significant findings of multivariable analysis in bold.

[†]n(%)

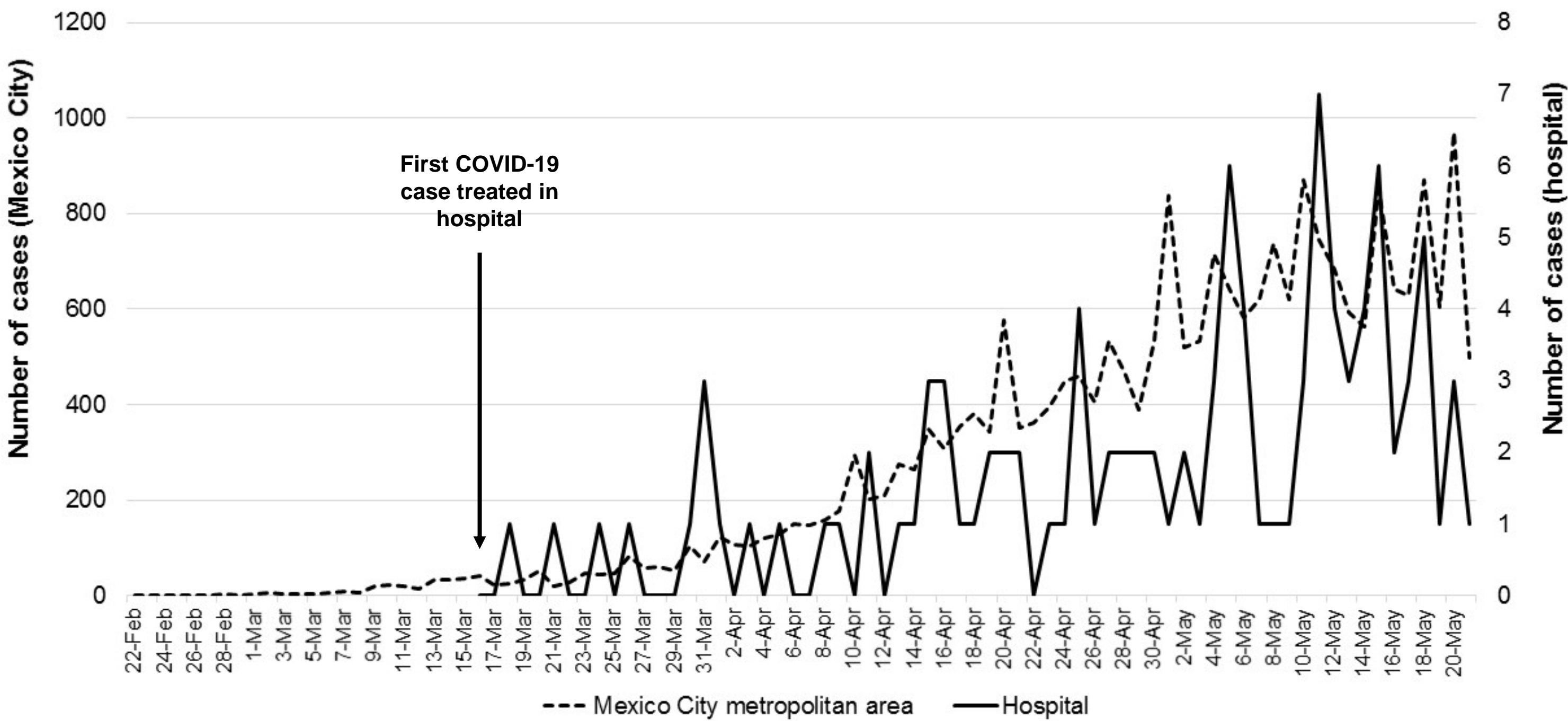
Table 2. Factors associated with asymptomatic carriers.

Variable	Carriers (n=37) [†]	Non-carriers (n=944) [†]
Male sex	20 (54.1)	397 (42.1)
Age, years (median, IQR)	39 (26-43)	33 (28-45)
Working category:		
Physician	3 (8.1)	371 (39.3)
Nurse	15 (40.6)	264 (27.9)
Kitchen personnel*	8 (21.6)	50 (5.3)
Comorbidities:		
Diabetes mellitus	0 (0)	8 (0.8)
Systemic hypertension	0 (0)	33 (3.5)
Obesity (BMI≥30)	8 (21.6)	150/922 (16.3)
Working place:		
ICU/ER	10 (27.0)	342 (36.2)
Wards (Nursery)	6 (16.2)	66 (7.0)
Wards (Physicians)	1 (2.7)	100 (10.6)
Non-COVID-19 clinical area	9 (24.3)	191 (20.2)
Non-clinical area	11 (29.7)	193 (20.4)
Residence:		
State of Mexico*	10 (27.0)	65 (6.9)

*Significant findings of multivariable analysis in bold.

[†]n(%)

Comparison of the COVID-19 epidemic curves for Mexico City and hospital HCWs, 02/22/2020 – 05/21/2020.



Conclusions and remarks:

- Internal (e.g., being a nurse), external (e.g., residence in high transmission area), and preexisting (e.g., diabetes mellitus) factors were associated with COVID-19 cases and ACs in our HCWs.
- At the time of the study, face masks were mandatory only in clinical areas:
 - ❖ Non-clinical areas: personnel interacted in crowded places without use of face masks.
 - ❖ Kitchen personnel: many ACs detected after COVID-19 case; they did not routinely use face mask while in poorly ventilated hospital kitchen.
- Personal protective equipment (PPE) would be anticipated to provide only partial protection against all possible risk exposures.
- Behavioral factors and appropriate use of PPE remain to be studied in our setting.