MORNING BRIEF

Scientific Review

15 July 2020

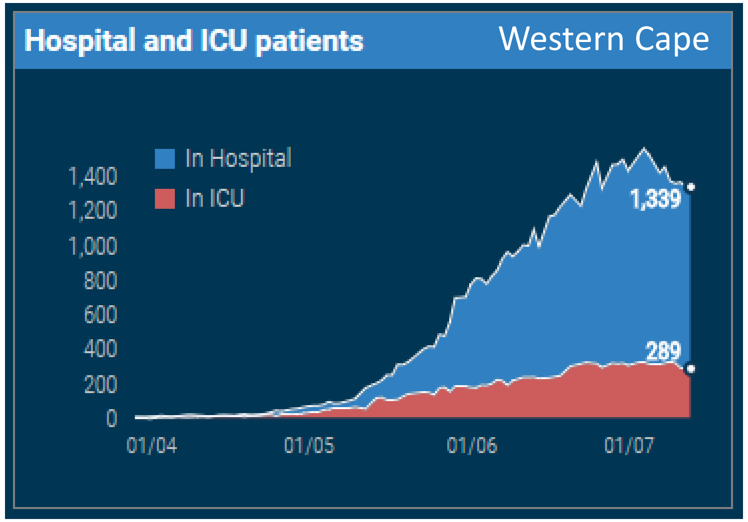
The purpose of the Morning Brief is to summarize and present key information, research articles and other relevant publications pertaining to critical care and COVID-19.

Stellenbosch University Research Response Team

Content

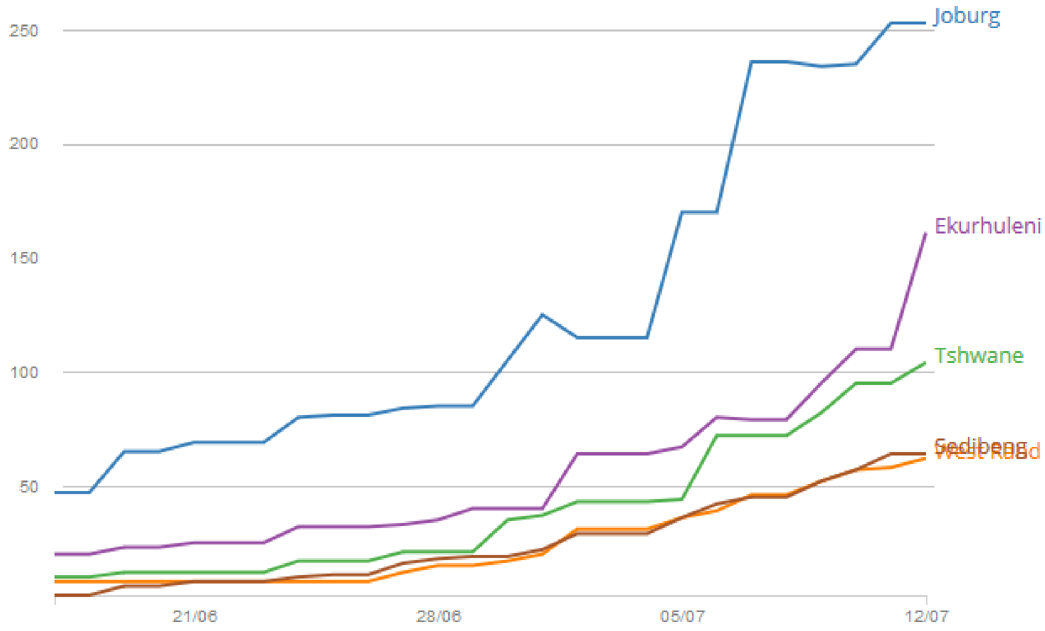
Statistics
Viral load for prognosis

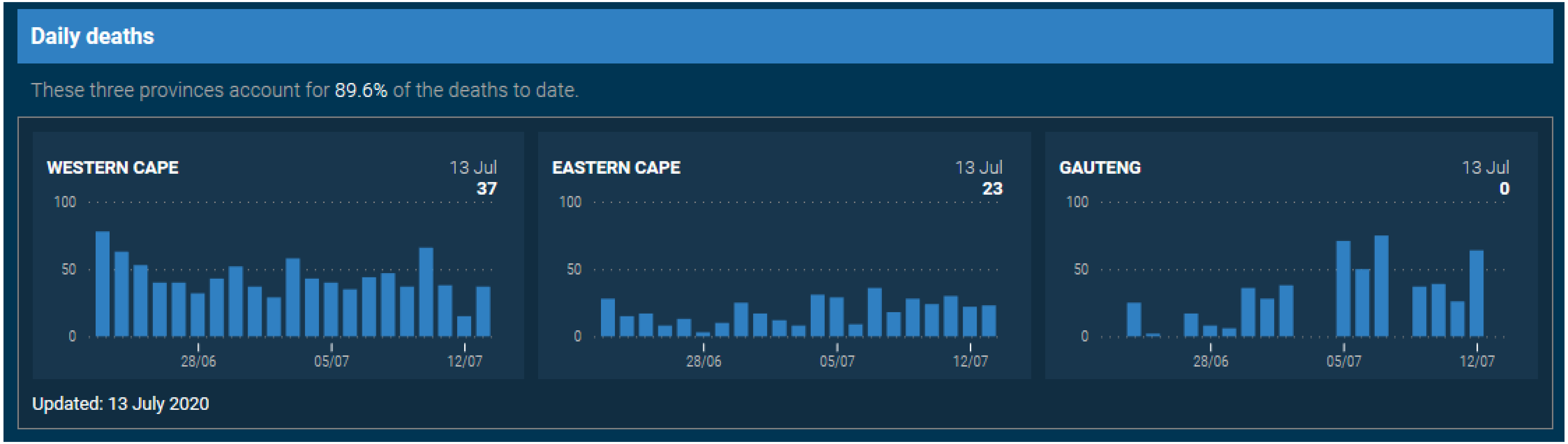
Source of admission data not described



https://mediahack.co.za/datastories/coronavirus/dashboard/

Cumulative covid-19-related deaths in Gauteng's districts





Clinical Infectious Diseases

Article Contents

ACCEPTED MANUSCRIPT

Impact of SARS-CoV-2 Viral Load on Risk of Intubation and Mortality Among Hospitalized Patients with Coronavirus Disease 2019 FREE

Reed Magleby, MD, Lars F Westblade, PhD, Alex Trzebucki, MD, Matthew S Simon, MD, MS, Mangala Rajan, MBA, Joel Park, MD, MS, Parag Goyal, MD, MSc, Monika M Safford, MD, Michael J Satlin, MD, MS ✉ Author Notes

Clinical Infectious Diseases, ciaa851, https://doi.org/10.1093/cid/ciaa851

Published: 30 June 2020 **Article history** ▾

Retrospective analysis of PCR cycle threshold values of admitted patients in two hospitals in New York

Swabs within one day of hospital admission

Classified as High (< 25.2), medium (< 30.3) and low (> 30.3) viral load samples

Results

678 swabs with Ct values

Median Ct value 27.9

Variables	High viral load (Ct<25) n=220	Medium viral load (Ct 25-30) n=216	Low viral load (Ct>30) n=242	P[1]
Age, years	**72 (60-81)**	**69 (58-79)**	**63 (50-73)**	**<0.001**
Female gender	81 (36.8)	84 (38.9)	99 (40.9)	0.37
Race[2] (n=585)				
White	89 (45.1)	79 (43.4)	91 (44.2)	0.54
Black	25 (12.7)	27 (14.8)	30 (14.6)	0.74
Asian	42 (21.3)	32 (17.6)	36 (17.5)	0.23
Hispanic ethnicity[2] (n=628)	48 (23.9)	54 (27.1)	60 (26.3)	0.58
Comorbidities				
Obesity: BMI >30[2] (n=663)	60 (27.6)	70 (33.5)	79 (33.3)	0.20
Coronary artery disease	**44 (20.0)**	**45 (21.8)**	**31 (12.8)**	**0.039**
Congestive heart failure	**28 (12.7)**	**15 (6.9)**	**13 (5.4)**	**0.004**
Cerebrovascular disease	**27 (12.3)**	**15 (6.9)**	**13 (5.4)**	**0.007**
Diabetes	82 (37.3)	71 (32.9)	77 (31.8)	0.22
Hypertension	**136 (61.8)**	**144 (66.7)**	**121 (50.0)**	**0.008**
Chronic pulmonary disease	49 (22.3)	40 (18.5)	38 (15.7)	0.07
COPD	**21 (9.6)**	**11 (5.1)**	**9 (3.7)**	**0.009**
Asthma	20 (9.1)	22 (10.1)	20 (8.3)	0.75
Chronic kidney disease	**32 (14.6)**	**22 (10.2)**	**20 (8.3)**	**0.032**
ESRD	**22 (10.0)**	**13 (6.0)**	**12 (5.0)**	**0.035**
HIV infection	4 (1.8)	3 (1.4)	5 (2.1)	0.83
Active cancer	**22 (10.0)**	**14 (6.5)**	**6 (2.5)**	**0.001**
Solid tumor	**13 (5.9)**	**8 (3.7)**	**5 (2.1)**	**0.032**
Hematologic malignancy	**9 (4.1)**	**6 (2.8)**	**2 (0.8)**	**0.025**
Transplant recipient	15 (6.8)	8 (3.7)	9 (3.7)	0.12
Rheumatologic disease	12 (5.5)	13 (6.0)	12 (5.0)	0.81
Social characteristics				
Former or current smoker	**78 (35.5)**	**54 (25.0)**	**62 (25.6)**	**0.022**
Known sick contacts	41 (18.6)	41 (19.0)	34 (14.1)	0.18
Healthcare worker	7 (3.2)	10 (4.6)	9 (3.7)	0.80
Home medications				
ACE inhibitor/ARB	68 (30.9)	74 (34.3)	68 (28.1)	0.49
Hydroxychloroquine	5 (2.3)	1 (0.5)	9 (3.7)	0.27
Immunosuppressive medications	27 (12.3)	21 (9.7)	19 (7.9)	0.11
Oxygen by nasal cannula	81 (36.8)	86 (39.8)	113 (46.7)	0.03
Oxygen by non-rebreather mask, high-flow nasal cannula, or non-invasive mechanical ventilation	50 (22.7)	38 (17.6)	33 (13.6)	0.011
Mechanical ventilation	11 (5.0)	8 (3.7)	4 (1.7)	0.046
Inflammatory makers				
Procalcitonin[2] (n=504)	0.26 (0.12-0.64)	0.22 (0.1-0.56)	0.2 (0.11-0.45)	0.12
C-reactive protein[2] (n=373)	12.9 (7.8-20.4)	11.1 (6.3-19.0)	11.4 (6.7-20.2)	0.57
Ferritin[2] (n=521)	849 (409-1417)	842 (409-1542)	821 (340-1361)	0.42
D-dimer[2] (n=405)	535 (309-990)	472 (300-980)	547 (354-1716)	0.17
Outcomes				
Intubation	**64 (29.1)**	**45 (20.8)**	**36 (14.9)**	**<0.001**
Days until intubation	2 (0-3)	2 (0-4)	2 (0-5)	0.66
In-hospital mortality	**77 (35.0)**	**36 (17.6)**	**14 (6.2)**	**<0.001**
Days until death	7 (4-14)	8 (3-15)	10 (3-32)	0.32
Other complications				
Myocardial infarction	**16 (7.3)**	**10 (4.6)**	**5 (2.1)**	**0.007**
Congestive heart failure	**14 (6.4)**	**6 (2.8)**	**6 (2.5)**	**0.032**
Arrhythmia	29 (13.2)	18 (8.3)	20 (8.3)	0.08
Acute kidney injury requiring hemodialysis	**33 (15.0)**	**18 (8.3)**	**7 (2.9)**	**<0.001**

Variables are expressed as No. (%) or median (interquartile ranges).

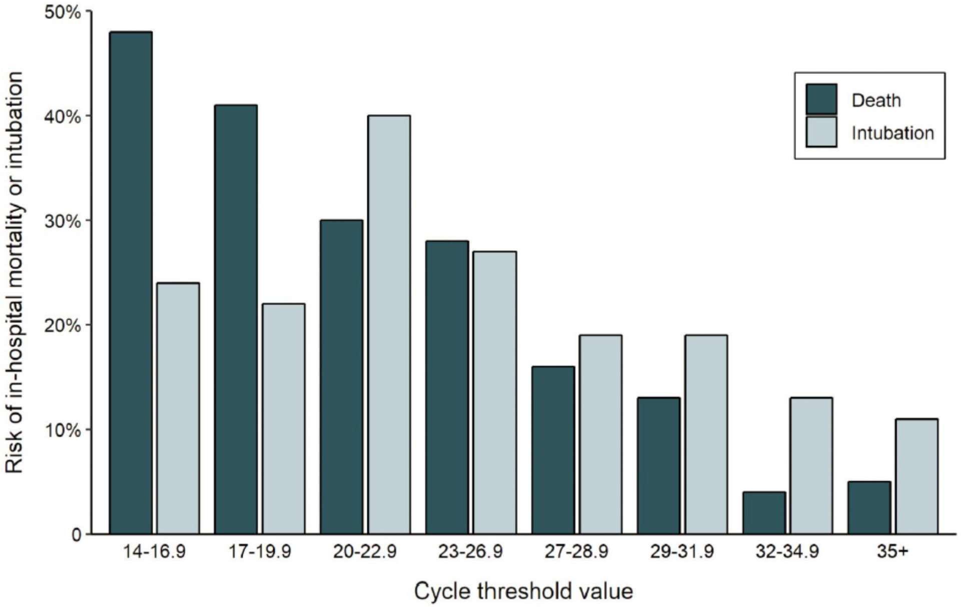
High VL mortality vs low

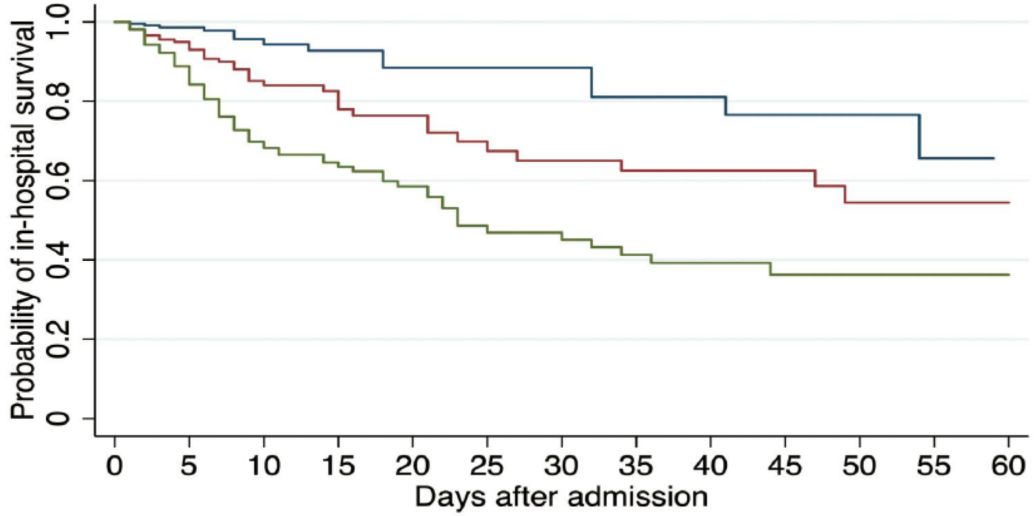
aHR 6.05; 95% CI: 2.92-12.52; *P*<0.001)

High VL intubation vs low

aHR of 2.73; 95% CI: 1.68-4.44; *P*<0.001)

(adjusted for age, comorbidities, days of symptoms prior to admission and others)





Number at risk

High viral load	237	153	73	50	38	31	28	20	18	13	9	6	5
Medium viral load	209	143	80	54	37	29	27	23	21	18	12	10	9
Low viral load	217	153	89	63	45	28	26	21	16	12	12	10	7

This summary was prepared by Dr E Maasdorp as part of the daily brief to the TBH ICU team.