

# WHAT ABOUT HIV?




1

## Could PWH Have Worse Outcomes With COVID-19?

- **Theoretically, yes**

- PWH (especially low CD4 & high VLs) are immunosuppressed, a risk factor for ARDS in other viral infections<sup>[1]</sup>
- However, immunosuppression is not a clear risk factor for severe COVID-19<sup>[2]</sup>
- PWH have an increased frequency of some of the known risk factors associated with severe COVID-19<sup>[3]</sup>
  - Almost 50% of PWH in the US are aged  $\geq 50$  yrs<sup>[4]</sup>
  - PWH have a higher rate of **cardiovascular disease** and **pulmonary disease**, including chronic obstructive pulmonary disease, than the general population<sup>[5,6]</sup>
  - COVID-imposed **lymphopenia** in low CD4 could delay viral clearance  $\rightarrow$  disease progression
  - Higher rates of **poverty** and marginal housing<sup>[7]</sup>

1. Cortegiani. Crit Care. 2018;22:157. 2. CDC. People with certain medical conditions. Updated August 14, 2020. 3. CDC. CDC updates, expands list of people at risk of severe COVID-19 illness. June 25, 2020. 4. CDC. HIV and older Americans. Reviewed November 12, 2019. 5. Triant. Curr HIV/AIDS Rep. 2013;10:199. 6. Fitzpatrick. AIDS. 2018;32:277. 7. Shiao. AIDS Behav. 2020;24:2244.

Slide credit:  [clinicaloptions.com](https://clinicaloptions.com)

2

## Additional Concerns

Galetzki et al. *AIDS Res Ther* (2021) 18:28  
<https://doi.org/10.1186/s12981-021-00335-1>

AIDS Research and Therapy

- COVID-19–associated pulmonary aspergillosis (CAPA) among severely ill COVID-19 patients
- Additional contributing factor to mortality
- Associated factors
  - Damaged respiratory epithelium
  - Dysfunctional mucociliary clearance
  - Low immune response, including low CD4 cell count

[https://www.news-medical.net/image.axd?picture=2020%2F11%2Fshutterstock\\_1107032042.jpg](https://www.news-medical.net/image.axd?picture=2020%2F11%2Fshutterstock_1107032042.jpg)

3

## Additional Concerns

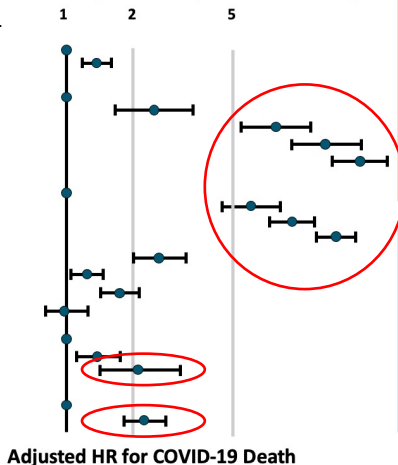
- HIV infection is also a prothrombotic condition
- COVID-19: Pro-thrombotic state
  - Proinflammatory cytokines (IL-2, IL-6, IFN- $\gamma$ )
  - Complement-mediated microvascular injury
- COVID-19 and HIV co-infected patients could have a high risk of developing thrombosis

4

# COVID-19 and HIV: Routine Public Sector Data in Western Cape, South Africa

Evaluated factors among all adult public sector patients (N = 3,460,932)

Patient Characteristics	Adjusted HR	95% CI
Sex		
Female	1.00	
Male	1.45	1.23-1.70
Age		
20-39 yrs	1.00	
40-49 yrs	2.83*	1.92-4.15
50-59 yrs	7.78*	5.51-10.98
60-69 yrs	11.54*	8.11-16.42
≥ 70 yrs	16.79*	11.69-24.11
Noncommunicable diseases		
None	1.00	
Diabetes well controlled (A1C < 7%)	5.37*	3.96-7.27
Diabetes poorly controlled (A1C 7-8.9%)	8.53*	6.60-11.02
Diabetes uncontrolled (A1C ≥ 9%)	12.07*	9.70-15.02
Diabetes, no measure of control	2.91*	2.18-3.89
Hypertension	1.31 <sup>†</sup>	1.09-1.57
Chronic kidney disease	1.86*	1.46-2.33
Chronic pulmonary disease	0.93	0.73-1.17
Tuberculosis		
Never tuberculosis	1.00	
Previous tuberculosis	1.51 <sup>†</sup>	1.18-1.93
Current tuberculosis	2.70*	1.81-4.04
HIV		
Negative	1.00	
Positive	2.14	1.70-2.70*



22,308 total persons diagnosed with COVID-19; 3978 PWH diagnosed with COVID-19

Standard mortality ratio for COVID-19 death with vs without HIV: 2.39 (95% CI: 1.96-2.86)

\*P < .001. <sup>†</sup>P = .004. <sup>‡</sup>P = .001.

Boulle. CID. 2020;[Epub].

Slide credit: [clinicaloptions.com](http://clinicaloptions.com)

5


FULL TEXT ARTICLE

## Comparison of outcomes in HIV-positive and HIV-negative patients with COVID-19

Jacqui Venturas, Jarrod Zamparini, Erica Shaddock, Sarah Stacey, Lyle Murray, Guy A Richards, Ismail Kalla, Adam Mahomed, Farzahna Mohamed, Mervyn Mer, Innocent Maposa and Charles Feldman  
Journal of Infection, 2021-08-01, Volume 83, Issue 2, Pages 217-227, Copyright © 2021 Elsevier Ltd

	Entire cohort (n = 384)	HIV-positive (n = 108)	HIV-negative (n = 276)	P value
<b>Score</b>				
Median (IQR)				
CURB-65	1 (0-1)	0 (0-1)	1 (0-1)	0.09
NEWS2	6 (3-8)	5 (3-7)	6 (3-8)	0.28
4C Score	22 (20-24) n=370	23 (20-25) n=105	21 (20-23) n=265	0.0004
<b>Total Complications</b>				
n (%)	150	40 (37.04%)	106 (39.86%)	0.64
<b>Outcomes</b>				
Length of Stay - Median (IQR) (Days)	8 (5-12)	8.5 (5-12)	8 (5-12)	0.52
Died overall - n (%)	70 (18%)	16 (15%)	54 (20%)	0.31
Died in ICU - n (%)	33 (8.6%)	6 (46%)	27 (47%)	1.0

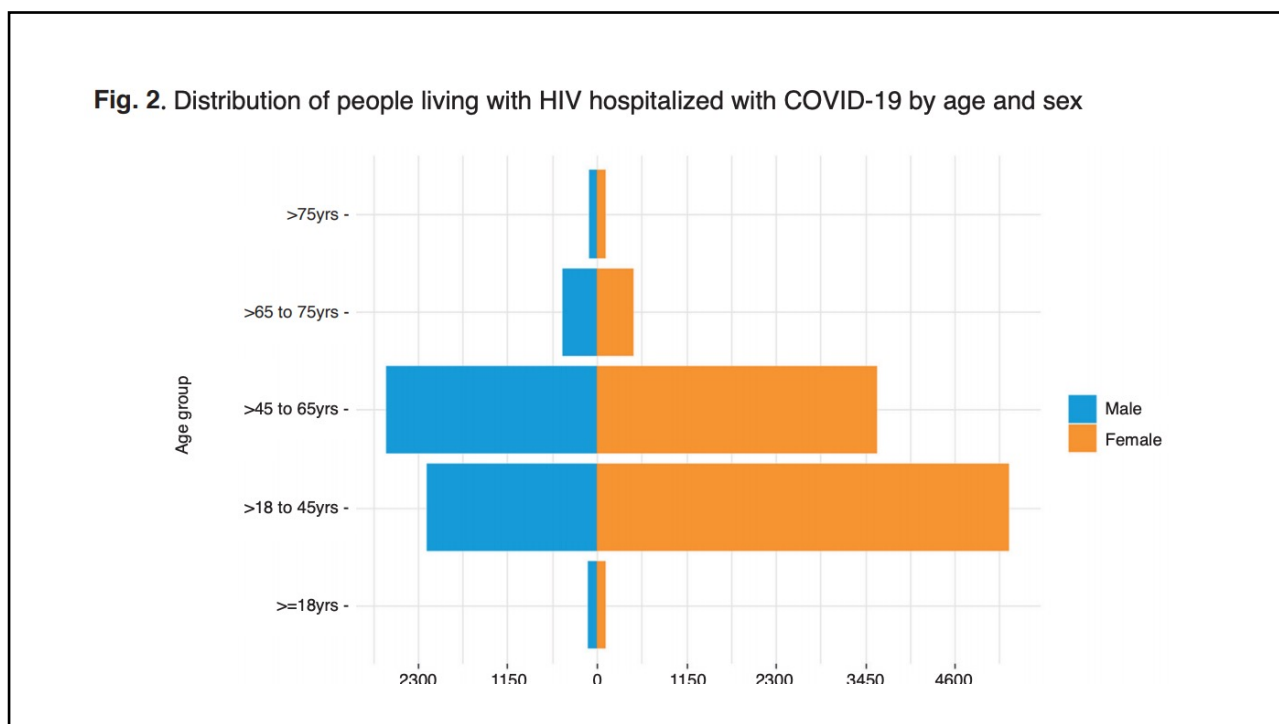
6



**WHO Global Clinical Platform  
for COVID-19**  
*Data for public health response*

**Clinical features and prognostic factors of COVID-19  
in people living with HIV hospitalized with suspected  
or confirmed SARS-CoV-2 infection**

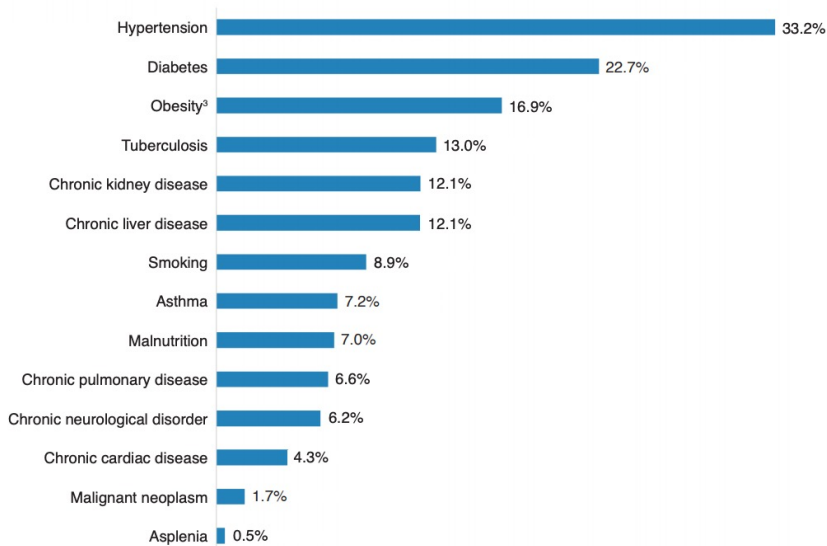
7



8

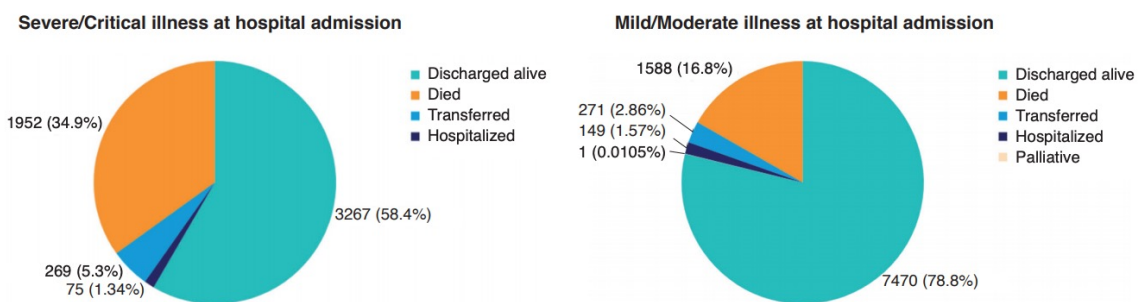


**Fig. 3.** Frequency of underlying conditions among PLHIV hospitalized with COVID-19



9

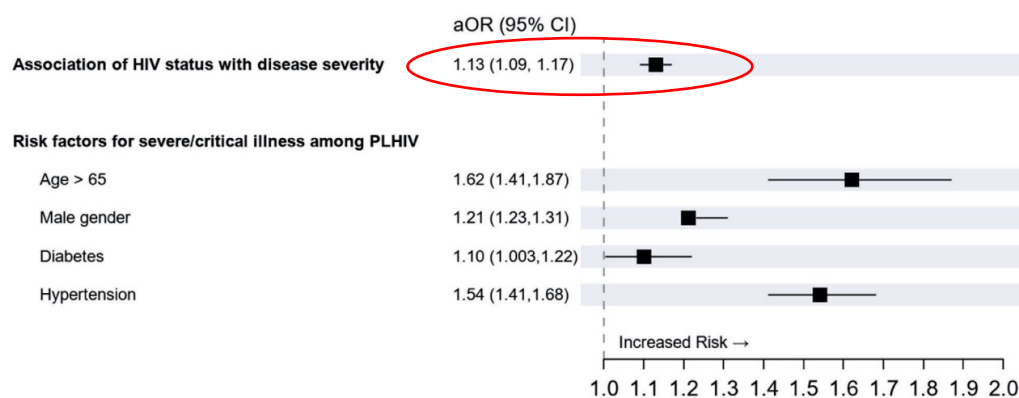
**Fig. 4.** Clinical outcomes among PLHIV hospitalized with COVID-19, stratified by severity of illness at hospital admission



Clinical outcomes included: 1) discharged to home, 2) died in hospital, 3) transferred (to another facility for further care), 4) remaining hospitalized at the time of data entry, and 5) discharged to palliative care or hospice

10

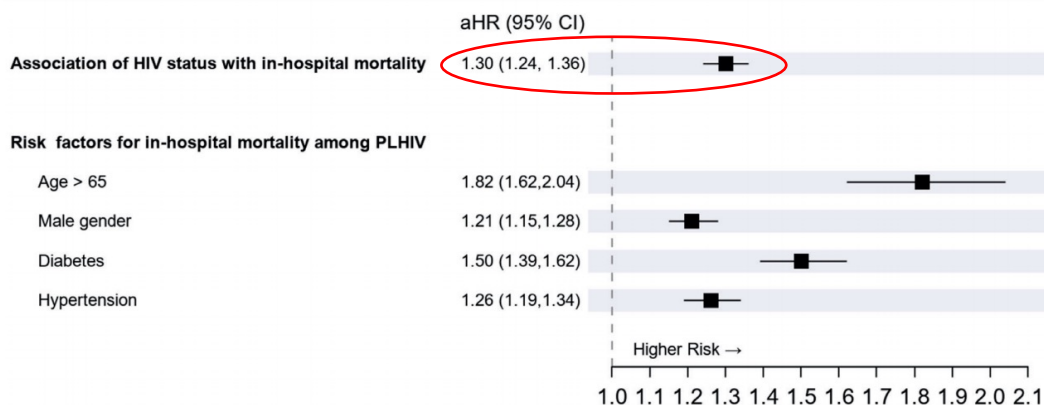
**Fig. 5. HIV infection and risk of severe or critical illness of COVID-19 at hospital admission**



The upper part of the figure shows HIV infection as a significant independent risk factor for severe or critical presentation of COVID-19, after adjusting for age, sex, burden of underlying conditions (adjusted odds ratio (aOR)). The lower part of the figure shows the adjusted odds ratio for each risk factor for severe or critical presentation of COVID-19 among PLHIV, after controlling for the other risk factors.

11

**Fig. 6. HIV infection and risk of in-hospital mortality for COVID-19**



The upper part of the figure shows HIV infection as a significant independent risk factor for in-hospital mortality of COVID-19, after adjusting for age, sex, disease severity and burden of underlying conditions (adjusted hazard ratios (aHR)). The lower part of the figure shows the adjusted hazard ratio for each risk factor for in-hospital mortality among PLHIV, after controlling for the other risk factors.

12

## Mortality Per Region

WHO African Region  
aHR 1.29, 95% CI 1.23-1.34

WHO European Region  
aHR 0.59, 95% CI 0.29-1.2

WHO Region of the Americas  
aHR 0.92, 95% CI 0.37-2.31

When excluding data from South Africa

- 311 HIV+ cases vs 7474 HIV- cases
- Mortality higher but no longer statistically significant
- aHR 1.16, 95% CI 0.90– 1.51

13

## Overall Conclusion

- In high-resource settings, HIV does not increase susceptibility to COVID-19 or severe outcomes

*“The available literature suggests that, at least in Europe and North America, HIV does not increase the risk for SARS-CoV-2 infection or predispose to poor outcomes from COVID-19. Most of the studies document a high prevalence of comorbidities among persons with HIV with severe COVID-19, suggesting that this may be the major driver of morbidity and mortality just like it is among persons without HIV. The study from South Africa is concerning, and future studies will be important to determine if HIV is a risk factor for increased COVID-19 mortality in low- and middle-income countries.”<sup>[1]</sup>*

*“Taken together, a picture emerges that there is not much difference in the incidence or clinical manifestations of PLWH compared with those who do not have HIV infection.”<sup>[2]</sup>*

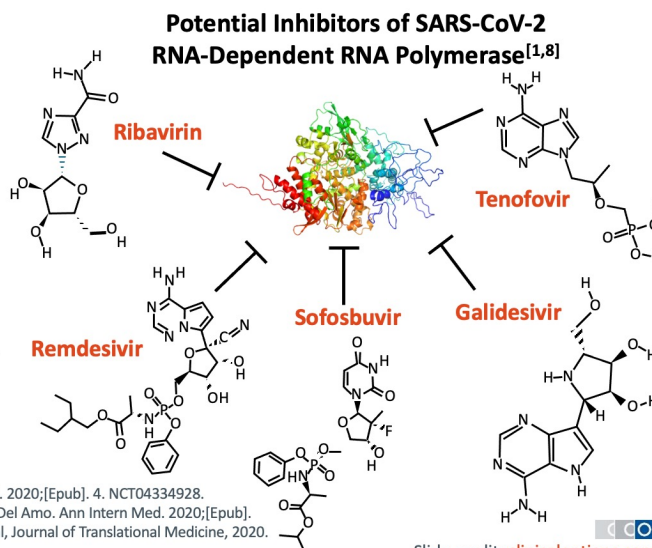
1. del Rio. NEJM Journal Watch. August 11, 2020. Available at: <https://www.jwatch.org/na52137/2020/08/11/covid-19-persons-living-with-hiv-what-do-we-know-today>. 2. Saag. AIDS. 2020;34:1755.

14

## Could PWH Have Better Outcomes With COVID-19?

### ▪ Theoretically, yes

- TFV may inhibit SARS-CoV-2 replication (similar structure to remdesivir)<sup>[1-3]</sup>
- Ongoing study of SARS-CoV-2 susceptibility among HCW in Spain randomized to TDF/FTC + hydroxychloroquine vs placebo<sup>[4]</sup>
- LPV/RTV and ATV/RTV under investigation but no benefit demonstrated to date<sup>[5,6]</sup>
- Proposed that HIV could suppress inflammation and prevent associated hyper-inflammatory state in severe COVID-19<sup>[7]</sup>
- PWH may be social distancing more from concern<sup>[6]</sup>



1. Elfiky. Life Sci. 2020;253:117592. 2. Beigel. NEJM. 2020;[Epub]. 3. Goldman. NEJM. 2020;[Epub]. 4. NCT04334928. 5. Cao. NEJM. 2020;382:1787. 6. Beck. Comput Struct Biotechnol J. 2020;18:784. 7. Del Amo. Ann Intern Med. 2020;[Epub]. 8. Aftab. J Transl Med. 2020;18:275. RNA polymerase image adapted from Aftab et al, Journal of Translational Medicine, 2020. Image licensed under Creative Commons Attribution 4.0 International (CC BY 4.0).

Slide credit: [clinicaloptions.com](http://clinicaloptions.com)

15

## Protease Inhibitors

- LPV/r some benefit in a non-human primate model of MERS-CoV
- In vitro studies reported antiviral activity of LPV/r against SARS-CoV-2 at a relatively high EC<sub>50</sub>
- Several observational studies & case reports: no clinical benefit
- RCT open-label trial: adults with severe COVID-19
  - No difference in time to clinical improvement or mortality
  - LPV/r treatment stopped early in 13 patients (13.8%) because of adverse events
- Lack of clinical benefit confirmed in RECOVERY & SOLIDARITY trials
- In vitro data: absence of anti-SARS-CoV-2 activity of DRV
- Clinical observation: PLWH on DRV-containing regimen not protected from COVID-19

16

## NRTIs

- Antiviral activity of TNF against SARS-CoV-2 in virtual and in vitro studies
- Speculation that TDF & TAF-containing ART may be protective
- Prospective cohort in Spain observed a higher rate of COVID-19 infection among PLWH on TAF or TDF
- Case series: TDF-based ART does not provide any clinical benefit against COVID-19 among PLWH


17

## NIH: Interim Guidance for COVID-19 and PWH

***“ People with HIV who have COVID-19 have an excellent prognosis, and they should be clinically managed the same as persons in the general population with COVID-19, including when making medical care triage determinations...  
The limited data currently available do not indicate that the disease course of COVID-19 in persons with HIV differs from that in persons without HIV.”***

- Some PWH have other comorbidities (eg, cardiovascular disease, lung disease) that increase the risk for more severe COVID-19 illness; chronic smokers are also at risk of more severe disease
- No drug has been proven to be safe and effective for treating COVID-19; PWH should not switch or add ARV drugs for purpose of treating or preventing COVID-19
- PWH should weigh the risks and benefits with their HCP of attending vs not attending in-person, HIV-related clinic appointments; telephone/virtual may replace in-person visits for routine or nonurgent care and adherence counseling

DHHS. Interim Guidance on HIV and COVID-19. Updated June 19, 2020.

Slide credit:  [clinicaloptions.com](https://clinicaloptions.com)

18

Furthermore, the Center for Disease Control and Prevention recommends the following for PLWHIV:(35)

- Ensure adequate medical supply of ARTs, at least for 30 days at all times.
- Keep influenza and pneumococcal vaccinations up to date.
- Establish a plan for clinical care if isolated/quarantined, such as telemedicine or online-physician portals.
- Maintain a social network, but remotely, in order to stay mentally healthy and to fight boredom.


19

## *The Pandemic's Hidden Victims: Sick or Dying, but Not From the Virus*

As the coronavirus overwhelms the health care system, people with other illnesses struggle to find treatment.

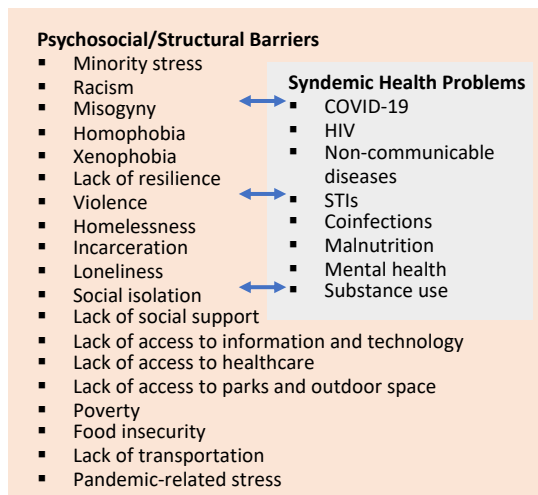
- COVID-19 expected to derail HIV treatment and PrEP uptake; increase loneliness, substance use, and depression

Grady, The New York Times. Updated May 14, 2020.

Slide credit:  [clinicaloptions.com](https://clinicaloptions.com)

20

# Physical, Emotional, and Social Well-being of PWH Threatened



- Mental health
  - Substance use
  - Poverty
  - Loneliness
  - Medical mistrust
  - Food insecurity
  - Housing insecurity
  - Racism, homophobia
- ... from COVID-19 public health response all likely to affect PWH disproportionately

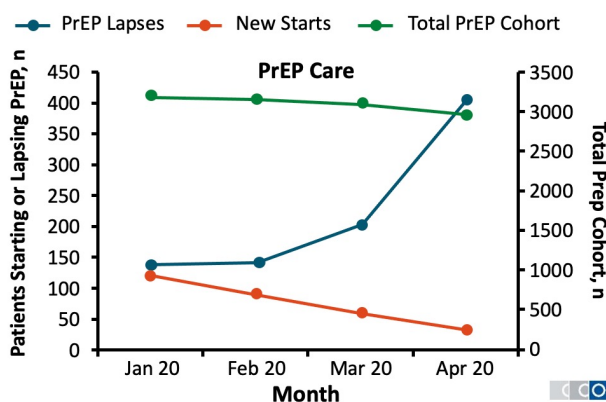
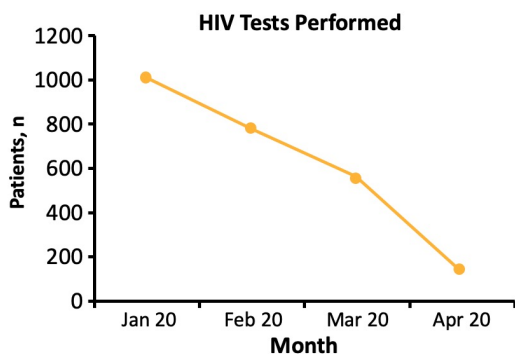
Shiau. AIDS Behav. 2020;24:2244.

Slide credit: [clinicaloptions.com](http://clinicaloptions.com)

21

## Access to HIV Testing and PrEP Care in Boston

- Analysis of electronic health records data from January 2020 through April 2020 at Fenway Health, a community health center in Boston specializing in LGBTQIA+ healthcare
  - HIV tests decreased by 85.1%; total number of patients with an active PrEP prescription decreased by 18.3%



Krakower. AIDS 2020. Abstr OACLB01.

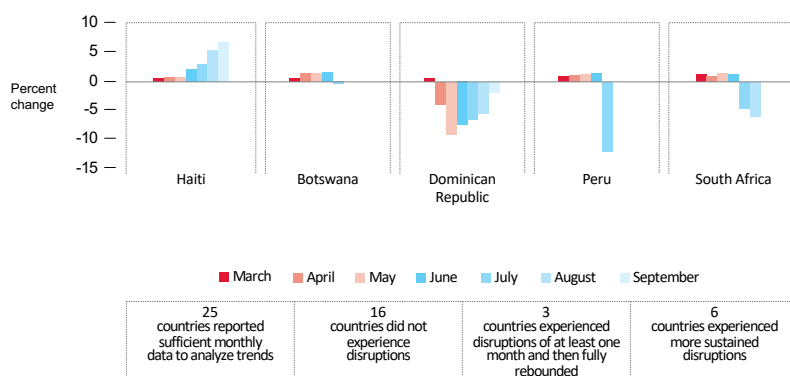
Slide credit: [clinicaloptions.com](http://clinicaloptions.com)

22



## Change in Number of People on ART in 2020

Change in the number of people currently on antiretroviral therapy per month, compared to baseline, selected countries, 2020



Source: UNAIDS/WHO/UNICEF HIV services tracking tool, November 2020.

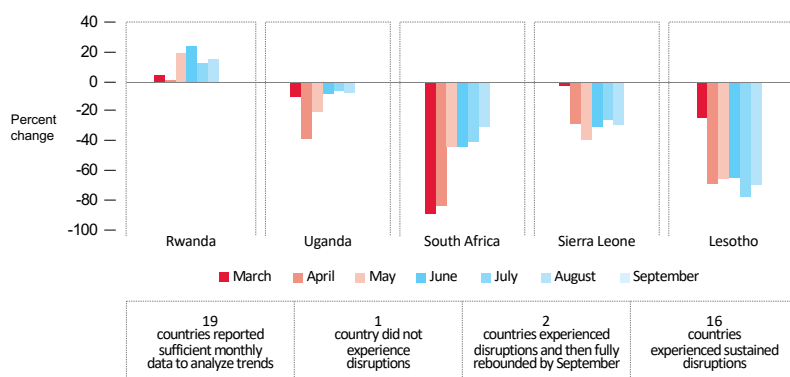
Note: The baseline is the average of January and February reports.

Note: Selected countries fulfilled the following criteria: (a) provided data for January and February 2020; (b) reported on at least 50 people receiving services in January; (c) had at least 50% of facilities reporting during the month; and (d) had at least six months of data.

23

## Change in Number of HIV Tests in 2020

Change in the number of HIV tests and results returned per month, compared to baseline, selected countries, 2020



Source: UNAIDS/WHO/UNICEF HIV services tracking tool, November 2020.

Note: The baseline is the average of January and February reports.

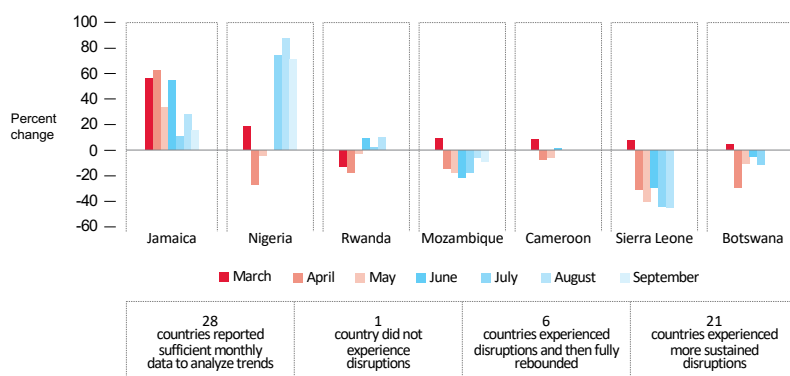
Note: Selected countries fulfilled the following criteria: (a) provided data for January and February 2020; (b) reported on at least 50 people receiving services in January; (c) had at least 50% of facilities reporting during the month; and (d) had at least six months of data.

24



## Change in New ART Initiations, 2020

Change in the number of people newly initiating antiretroviral therapy per month, compared to baseline, selected countries, 2020



Source: UNAIDS/WHO/UNICEF HIV services tracking tool, November 2020.

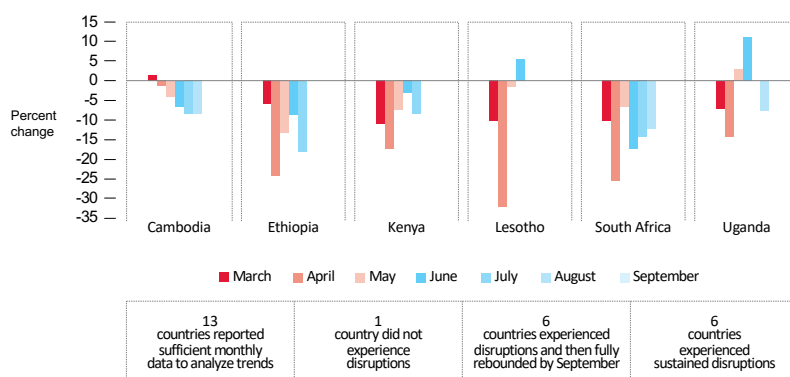
Note: The baseline is the average of January and February reports.

Note: Selected countries fulfilled the following criteria: (a) provided data for January and February 2020; (b) reported on at least 50 people receiving services in January; (c) had at least 50% of facilities reporting during the month; and (d) had at least six months of data.

25

## Change in Pregnant Women Tested in 2020

Change in the number of pregnant women tested for HIV per month, compared to baseline, selected countries, 2020



Source: UNAIDS/WHO/UNICEF HIV services tracking tool, November 2020.

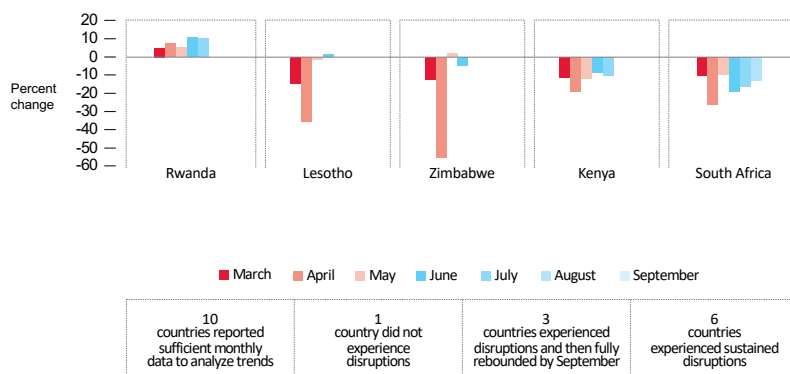
Note: The baseline is the average of January and February reports.

Note: The six countries selected were among 13 that fulfilled the following criteria: (a) had data for January 2020; (b) had more than 50 pregnant women in January data; (c) had more than 50% of facilities reporting or data from 50% of estimated births; and (d) had at least six months of data.

26

## Change in Number of Pregnant Women on ART in 2020

Change in the number of pregnant women receiving antiretroviral therapy during pregnancy per month, compared to baseline, selected countries, 2020



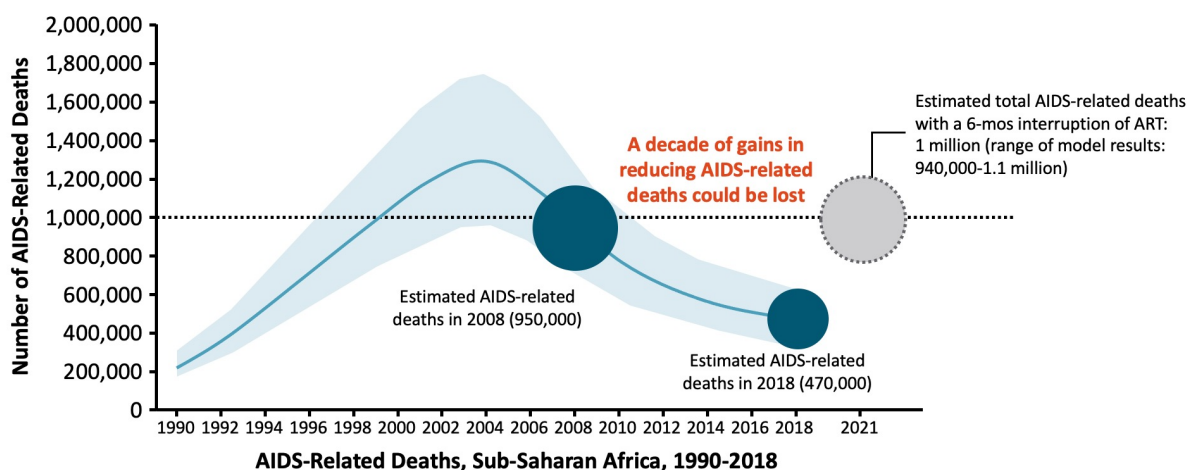
Source: UNAIDS/WHO/UNICEF HIV services tracking tool, November 2020.

Note: The baseline is the average of January and February reports.

Note: Selected countries fulfilled the following criteria: (a) provided data for January 2020; (b) reported on at least 50 pregnant women living with HIV in January; (c) had at least 50% of facilities reporting, or data from 50% of pregnant women living with HIV; and (d) had at least six months of data.

27

## Potential Cost of Interruption of HIV Services in Sub-Saharan Africa



UNAIDS. Modelling the extreme—COVID-19 and AIDS-related deaths. May 25, 2020. Jewell. Lancet HIV. 2020;[Epub].

Slide credit: [clinicaloptions.com](http://clinicaloptions.com)

28

## Treatment

29

### Treatment of COVID-19

Treatment will vary depending on severity of disease.  
Some Albertans will be able to stay home and manage symptoms with comfort measures such as:

- rest
- analgesics
- fluids
- time



30

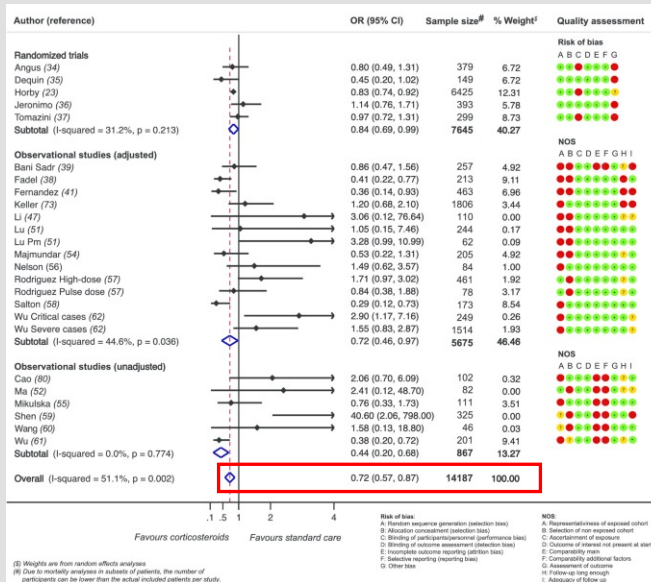
DISEASE SEVERITY	PANEL'S RECOMMENDATIONS
Hospitalized but Does Not Require Supplemental Oxygen	<p>The Panel <b>recommends against</b> the use of <b>dexamethasone (AIIa)</b> or other <b>corticosteroids (AIII)</b>.<sup>a</sup></p> <p>There is insufficient evidence to recommend either for or against the routine use of remdesivir. For patients who are at high risk of disease progression, the use of remdesivir may be appropriate.</p>
Hospitalized and Requires Supplemental Oxygen	<p>Use one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Remdesivir<sup>b,c</sup></b> (e.g., for patients who require minimal supplemental oxygen) (<b>BIIa</b>)</li> <li>• <b>Dexamethasone<sup>d</sup> plus remdesivir<sup>b,c</sup></b> (e.g., for patients who require increasing amounts of supplemental oxygen) (<b>BIII</b>)</li> <li>• <b>Dexamethasone<sup>d</sup></b> (when combination therapy with remdesivir cannot be used or is not available) (<b>BI</b>)</li> </ul>
Hospitalized and Requires Oxygen Delivery Through a High-Flow Device or Noninvasive Ventilation	<p>Use one of the following options:</p> <ul style="list-style-type: none"> <li>• <b>Dexamethasone<sup>d</sup></b> (<b>AI</b>)</li> <li>• <b>Dexamethasone<sup>d</sup> plus remdesivir<sup>b,c</sup></b> (<b>BII</b>)</li> </ul> <p>For patients who were recently hospitalized<sup>e</sup> with rapidly increasing oxygen needs and systemic inflammation:</p> <ul style="list-style-type: none"> <li>• Add either <b>baricitinib<sup>f,g</sup></b> (<b>BIIa</b>) or <b>tocilizumab<sup>h</sup></b> (<b>BIIa</b>) to one of the two options above</li> </ul>
Hospitalized and Requires IMV or ECMO	<p>For most patients:</p> <ul style="list-style-type: none"> <li>• <b>Dexamethasone<sup>d,i</sup></b> (<b>AI</b>)</li> </ul> <p>For patients who are within 24 hours of admission to the ICU:</p> <ul style="list-style-type: none"> <li>• <b>Dexamethasone<sup>d,i</sup> plus tocilizumab<sup>h</sup></b> (<b>BIIa</b>)</li> </ul>
<p><b>Rating of Recommendations:</b> A = Strong; B = Moderate; C = Optional  <b>Rating of Evidence:</b> I = One or more randomized trials without major limitations; IIa = Other randomized trials or subgroup analyses of randomized trials; IIb = Nonrandomized trials or observational cohort studies; III = Expert opinion</p>	

31

Telehealth Visit	<p><b>etesevimab</b> in these patients due to an increase in the proportion of potentially resistant variants (<b>AIII</b>).<sup>a</sup> See text for details.</p> <p>The Panel <b>recommends against</b> the use of <b>dexamethasone</b> or <b>other systemic glucocorticoids</b> in the absence of another indication (<b>AIII</b>).<sup>b</sup></p>
Discharged From Hospital Inpatient Setting in Stable Condition and Does Not Require Supplemental Oxygen	<p>The Panel <b>recommends against</b> continuing the use of <b>remdesivir (AIIa)</b>, <b>dexamethasone (AIIa)</b>, or <b>baricitinib (AIIa)</b> after hospital discharge.</p>
Discharged From Hospital Inpatient Setting and Requires Supplemental Oxygen <i>For those who are stable enough for discharge but who still require oxygen<sup>c</sup></i>	<p>There is insufficient evidence to recommend either for or against the continued use of remdesivir, dexamethasone, and/or baricitinib. Review the text below when considering the use of any of these agents after hospital discharge.</p>
Discharged From ED Despite New or Increasing Need for Supplemental Oxygen <i>When hospital resources are limited, inpatient admission is not possible, and close follow-up is ensured<sup>d</sup></i>	<p>The Panel recommends using <b>dexamethasone 6 mg PO</b> once daily for the duration of supplemental oxygen (dexamethasone use should not exceed 10 days) with careful monitoring for adverse events (<b>BIII</b>).</p> <p>There is insufficient evidence to recommend either for or against the use of remdesivir. When considering the use of remdesivir, review the text below for further discussion.</p> <p>The Panel <b>recommends against</b> the use of <b>baricitinib</b> in this setting, except in a clinical trial (<b>AIII</b>).</p>
<p><b>Rating of Recommendations:</b> A = Strong; B = Moderate; C = Optional</p>	

32

# Effects of Cortisone on Mortality



33

**Recommendations:** The panel made two recommendations: a strong recommendation for systemic (i.e. intravenous or oral) corticosteroid therapy (e.g. 6 mg of dexamethasone orally or intravenously daily or 50 mg of hydrocortisone intravenously every 8 hours) for 7 to 10 days in patients with severe and critical COVID-19, and a conditional recommendation not to use corticosteroid therapy in patients with non-severe COVID-19.

34

## Antithrombotic Therapy in Patients With COVID-19

Last Updated: February 11, 2021

### Summary Recommendations

#### Laboratory Testing

- In nonhospitalized patients with COVID-19, there are currently no data to support the measurement of coagulation markers (e.g., D-dimers, prothrombin time, platelet count, fibrinogen) **(AIII)**.
- In hospitalized patients with COVID-19, hematologic and coagulation parameters are commonly measured, although there is currently insufficient evidence to recommend either for or against using this data to guide management decisions.

35

## Venous Thromboembolism Prophylaxis & Screening

- Non-hospitalized patients: anticoagulants and antiplatelet therapy should not be initiated for prevention of VTE or arterial thrombosis unless the patient has other indications for the therapy
- Hospitalized adults: Prophylactic dose anticoagulation
- Insufficient evidence to recommend high dose anticoagulation
- Hospitalized patients with COVID-19 should not routinely be discharged from the hospital while on VTE prophylaxis
- Continuing anticoagulation for extended VTE prophylaxis after hospital discharge can be considered for patients who are at low risk for bleeding and high risk for VTE

36

## Interleukin-6 Inhibitors

### Recommendations

- The Panel recommends using **tocilizumab** (single intravenous [IV] dose of tocilizumab 8 mg/kg actual body weight up to 800 mg) **in combination with dexamethasone** (6 mg daily for up to 10 days) in certain hospitalized patients who are exhibiting rapid respiratory decompensation due to COVID-19. These patients are:
  - Recently hospitalized patients (i.e., within first 3 days of admission) who have been admitted to the intensive care unit (ICU) within the prior 24 hours and who require invasive mechanical ventilation, noninvasive ventilation, or high-flow nasal canula (HFNC) oxygen (>0.4 FIO<sub>2</sub>/30 L/min of oxygen flow) **(BIIa)**; or
  - Recently hospitalized patients (i.e., within first 3 days of admission) not admitted to the ICU who have rapidly increasing oxygen needs and require noninvasive ventilation or HFNC oxygen and who have significantly increased markers of inflammation (CRP ≥75 mg/L) **(BIIa)**.

37

## Interleukin-1 Inhibitors

*Last Updated: July 17, 2020*

### Recommendation

- There is insufficient evidence to recommend for or against the use of interleukin (IL)-1 inhibitors, such as **anakinra**, for the treatment of COVID-19.

38

## Immunoglobulins: Non-SARS-CoV-2 Specific

*Last Updated: July 17, 2020*

### Recommendation

- The COVID-19 Treatment Guidelines Panel **recommends against** the use of non-severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)-specific **intravenous immunoglobulin (IVIG)** for the treatment of COVID-19, except in a clinical trial (**AIII**). This recommendation **should not preclude** the use of IVIG when otherwise indicated for the treatment of complications that arise during the course of COVID-19.

39

## Immunoglobulins: SARS-CoV-2 Specific

*Last Updated: July 17, 2020*

### Recommendation

- There is insufficient evidence for the COVID-19 Treatment Guidelines Panel to recommend either for or against **severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) immunoglobulins** for the treatment of COVID-19.

40

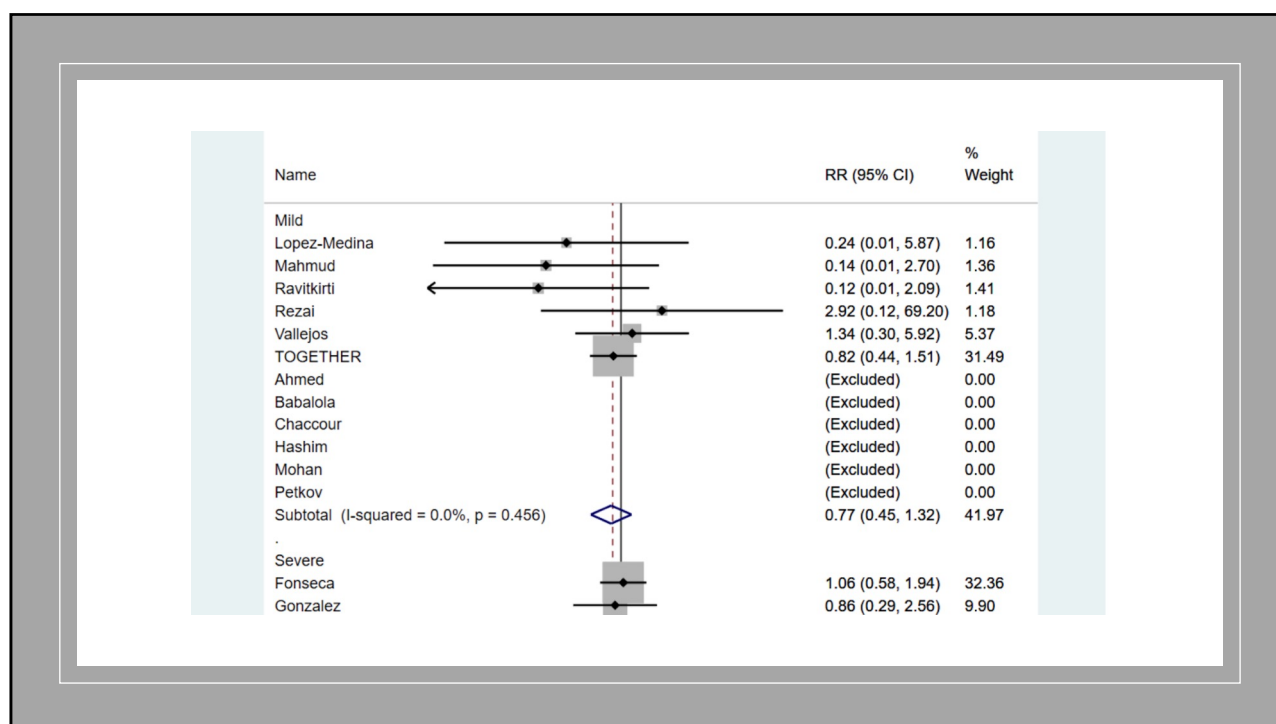


# Ivermectin

## Recommendation

- There is insufficient evidence for the COVID-19 Treatment Guidelines Panel (the Panel) to recommend either for or against the use of ivermectin for the treatment of COVID-19. Results from adequately powered, well-designed, and well-conducted clinical trials are needed to provide more specific, evidence-based guidance on the role of ivermectin in the treatment of COVID-19.

41



42

Mississippi Health Department officials have released a plea for people to stop taking ivermectin, a deworming medicine intended for horses and cows.

The department formally issued a warning after reports of a sharp surge in calls to poison control centres from people who had ingested the drug, which is used to control parasites in livestock.

---

43

## Colchicine

### Recommendations

- There is insufficient evidence for the COVID-19 Treatment Guidelines Panel (the Panel) to recommend either for or against the use of colchicine for the treatment of nonhospitalized patients with COVID-19.
- The Panel **recommends against** the use of colchicine for the treatment of hospitalized patients with COVID-19 **(AI)**.

44

## Fluvoxamine

- Murine sepsis model: reduced production of inflammatory cytokines
- Human endothelial cells: reduced expression of inflammatory genes
- Further studies needed
- Recommendation
- There is insufficient evidence for the COVID-19 Treatment Guidelines Panel to recommend either for or against the use of fluvoxamine for the treatment of COVID-19.
- Results from adequately powered, well-designed, and well-conducted clinical trials are needed to provide more specific, evidence-based guidance on the role of fluvoxamine for the treatment of COVID-19.

45

## Cell-Based Therapy Under Evaluation for the Treatment of COVID-19

*Last Updated: April 21, 2021*

### Mesenchymal Stem Cells

Mesenchymal stem cells are investigational products that have been studied extensively for broad clinical applications in regenerative medicine<sup>1</sup> and for their immunomodulatory properties.<sup>2</sup> It is hypothesized that mesenchymal stem cells could reduce the acute lung injury and inhibit the cell-mediated inflammatory response induced by SARS-CoV-2.

### Recommendation

- The COVID-19 Treatment Guidelines Panel **recommends against** the use of **mesenchymal stem cells** for the treatment of COVID-19, except in a clinical trial (**AIIb**).

46

Summary Recommendations
<p><b>Vitamin C</b></p> <ul style="list-style-type: none"> <li>There is insufficient evidence for the COVID-19 Treatment Guidelines Panel (the Panel) to recommend either for or against the use of vitamin C for the treatment of COVID-19.</li> </ul>
<p><b>Vitamin D</b></p> <ul style="list-style-type: none"> <li>There is insufficient evidence for the Panel to recommend either for or against the use of vitamin D for the treatment of COVID-19.</li> </ul>
<p><b>Zinc</b></p> <ul style="list-style-type: none"> <li>There is insufficient evidence for the Panel to recommend either for or against the use of zinc for the treatment of COVID-19.</li> <li>The Panel <b>recommends against</b> using zinc supplementation above the recommended</li> </ul>

47

## Considerations for Certain Concomitant Medications in Patients With COVID-19

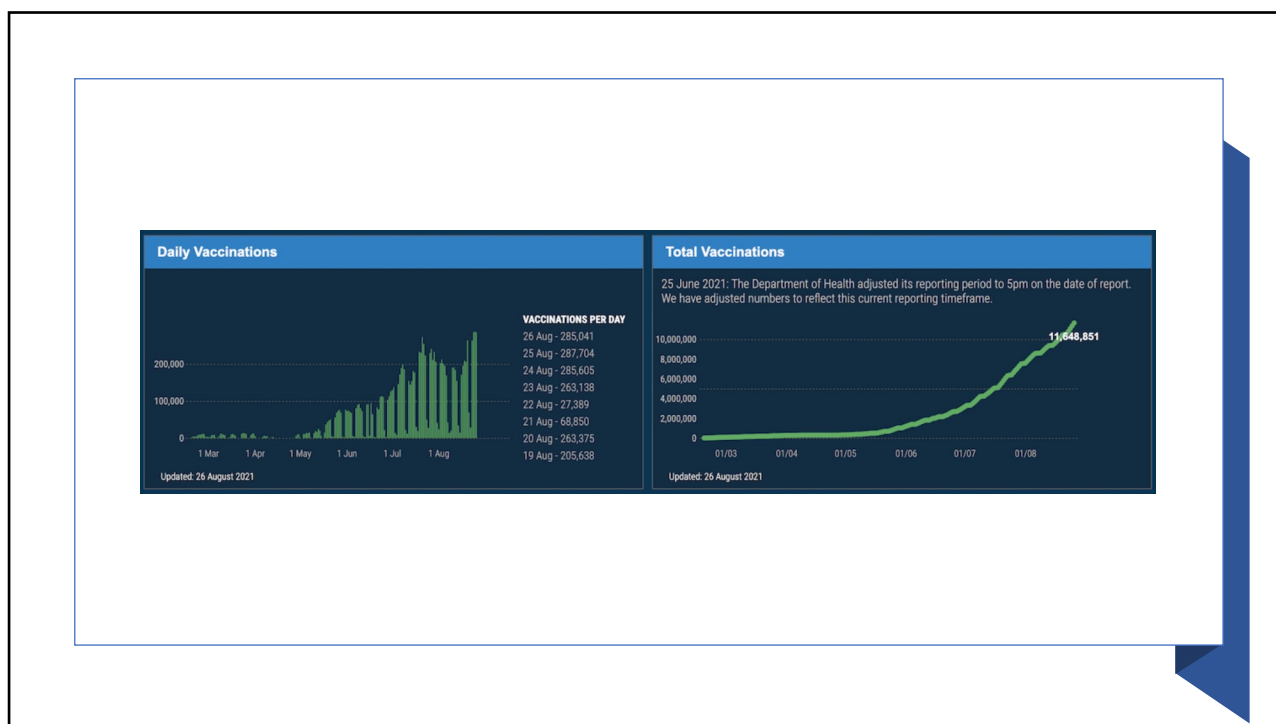
*Last Updated: August 4, 2021*

Summary Recommendations
<ul style="list-style-type: none"> <li>Patients with COVID-19 who are receiving concomitant medications (e.g., angiotensin-converting enzyme [ACE] inhibitors, angiotensin receptor blockers [ARBs], statins, systemic or inhaled corticosteroids, nonsteroidal anti-inflammatory drugs, acid-suppressive therapy) for underlying medical conditions <b>should not discontinue</b> these medications during acute management of COVID-19 unless discontinuation is otherwise warranted by their clinical condition (<b>AIIa</b> for <b>ACE inhibitors and ARBs</b>; <b>AIII</b> for <b>other medications</b>).</li> <li>The COVID-19 Treatment Guidelines Panel <b>recommends against</b> using medications off-label to treat COVID-19 if they have not demonstrated safety and efficacy in patients with COVID-19, except in a clinical trial (<b>AIII</b>).</li> </ul>

48



49



50

## What is Herd Immunity and How Can We Achieve It With COVID-19?

### Vaccines

- Depending how contagious an infection is, usually 50% to 90% of a population needs immunity before infection rates start to decline
- Viral evolution and changes in how people interact with each other can bring this number up or down

51

## 'Not a single vaccinated person in COVID-19 high care ward' – Groote Schuur doctor

 AUGUST 11TH, 2021  SOUTH AFRICA

52

## US Data

The unvaccinated have accounted for about 97% of hospitalizations in the US in this recent surge

In the last month, the average number of new daily cases in the US has more than quadrupled, from about 32,300 on July 18 to 140,900 on Wednesday

About 99.5% of new cases are among the unvaccinated

53

## 2. Will the Johnson & Johnson vaccine protect me against the Delta variant?

Earlier in July the [Johnson & Johnson Company](#) announced that its data showed that the single-shot COVID-19 vaccine generated strong, persistent activity against the rapidly spreading Delta variant. The data showed that the durability of the immune response lasted at least eight months, the length of time evaluated to date.

According to J&J laboratory tests, the vaccine performed better against the Delta variant than against the Beta strain. [In a statement](#), President and CEO of the South African Medical Research Council (SAMRC), Professor Glenda Gray assured South African's that the J&J vaccine was effective against the Delta variant.

"Data from the Sisonke Study conducted among healthcare workers is showing that the J&J vaccine is effective, and reduces your risk of severe disease, hospitalisation, and death," said Gray.

54

### 3. Will the Pfizer vaccine protect me against the Delta variant?

The Pfizer vaccine requires two shots, which are administered 42 days apart in South Africa. A safety and efficacy trial showed that the Pfizer vaccine was 95% effective in preventing coronavirus in participants who had not been infected by the virus before vaccination.

The [United Kingdom Health Department](#) found that two doses of the Pfizer vaccine reduced the risk of people developing coronavirus symptoms by 88%. The data also showed protection against coronavirus increases to 96% once you've received both doses of the Pfizer vaccine.

Gray has also confirmed that a [third dose](#) of Pfizer won't be necessary at this stage. This come after Dr Anthony Fauci -an infectious disease expert who serves as director of the US National Institute of Allergy and Infectious Diseases - said on Sunday that Americans who are immune compromised may end up needing COVID-19 vaccine booster shots as the United States deals with increasing cases from the Delta variant of the coronavirus.

55

Despite a lot of misinformation doing the rounds on social media regarding the alleged harmful effects of COVID-19 vaccines on women's fertility, as new study concluded that the jab poses no risk to pregnant women or to those trying to conceive.

56



### COVID-19 vaccine effectiveness against Delta variant

	PFIZER	MODERNA	J&J*	ASTRAZENECA
<b>Any COVID-19 infection</b>	39%–64%	76%	More data needed	More data needed
<b>Symptomatic COVID-19</b>	64%–88%	72%*	More data needed	60%–67%
<b>Severe COVID-19</b>	90%–97%	96%*	85%	92%
<b>COVID-19 death</b>	96%	More data needed	95%	More data needed
<b>COVID-19 hospitalization</b>	90%–96%	More data needed	71%	92%–93%

Note: \* denotes single dose studies

Source: NEJM; Public Health England; Yale Medicine; IHME; MedRxiv; Wall Street Journal; Israeli Ministry of Health; Mayo Clinic; AstraZeneca; J&J INSIDER

57

## To Boost or Not to Boost?

Israel: Pfizer: 75% effective against infection in people vaccinated in April; 16% in in people vaccinated in January

Pfizer: 92% effective in preventing infection with a high VL 2 weeks after 2<sup>nd</sup> dose, but 78% after 3 months

AstraZeneca: effectiveness fell from 69% to 61% during the same time frame.

Pfizer data show that a third shot produced 5 – 8 times more antibodies against the Delta variant

58

**Virological characteristics of SARS-CoV-2 vaccine breakthrough infections in health care workers**

---

161 vaccine breakthrough infections in a population of 24,706 vaccinated healthcare workers

---

Delta variant identified majority

---

Similar Ct-values, but lower probability of infectious virus detection in respiratory samples of vaccinated HCWs

---

Nevertheless, infectious virus was found in 68.6% of breakthrough infections and Ct-values decreased throughout the first 3 days of illness

59

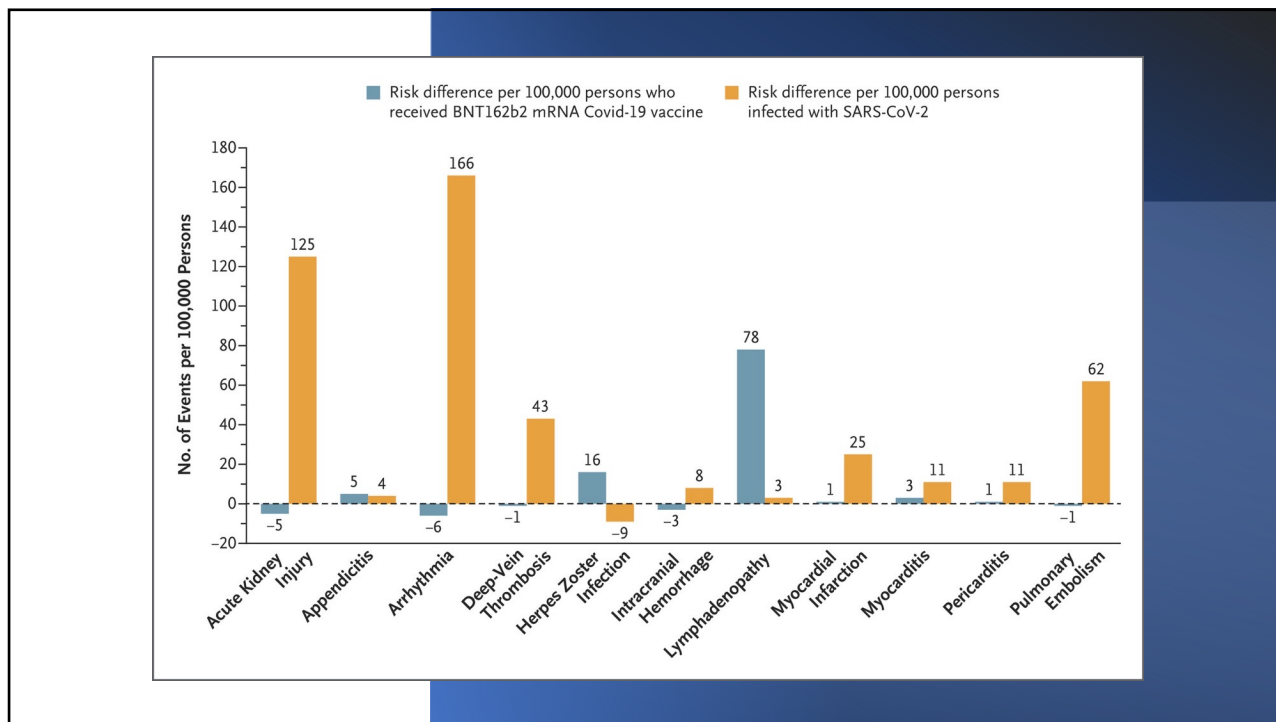


The NEW ENGLAND  
JOURNAL of MEDICINE

Safety of the BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Setting

Noam Barda, M.D., Noa Dagan, M.D., Yair Ben-Shalom, B.Sc., Eldad Kepten, Ph.D., Jacob Wasserman, M.D., Reuven Ohana, M.Sc., Miguël A. Hernán, M.D., Marc Lipitch, D.Phil., Isaac Kohane, M.D., Doron Netzer, M.D., Ben Y. Reis, Ph.D., and Ran D. Balicer, M.D.

60



61

Article | Published: 28 June 2021

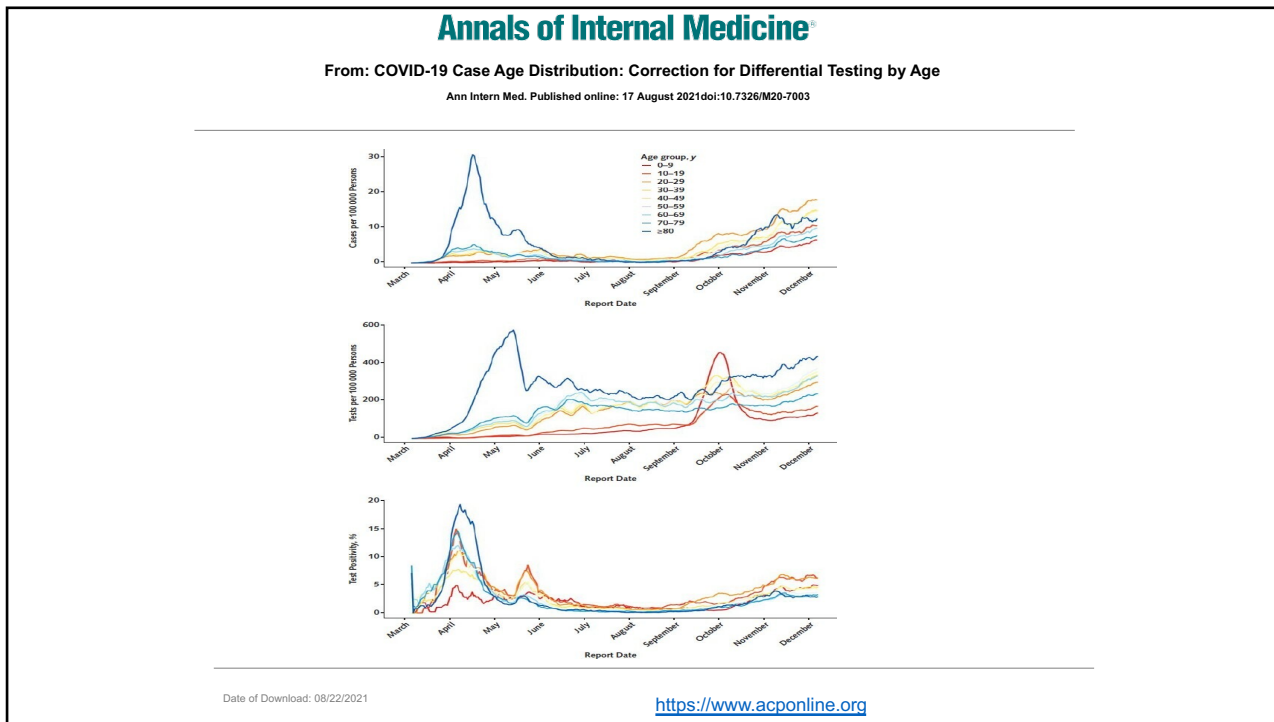
## SARS-CoV-2 mRNA vaccines induce persistent human germinal centre responses

Jackson S. Turner, Jane A. O'Halloran, Elizaveta Kalaidina, Wooseob Kim, Aaron J. Schmitz, Julian Q. Zhou, Tingting Lei, Mahima Thapa, Rita E. Chen, James Brett Case, Fatima Amanat, Adriana M. Rauseo, Alem Haile, Xuping Xie, Michael K. Klebert, Teresa Suessen, William D. Middleton, Pei-Yong Shi, Florian Krammer, Sharlene A. Teefey, Michael S. Diamond, Rachel M. Presti & Ali H. Ellebedy

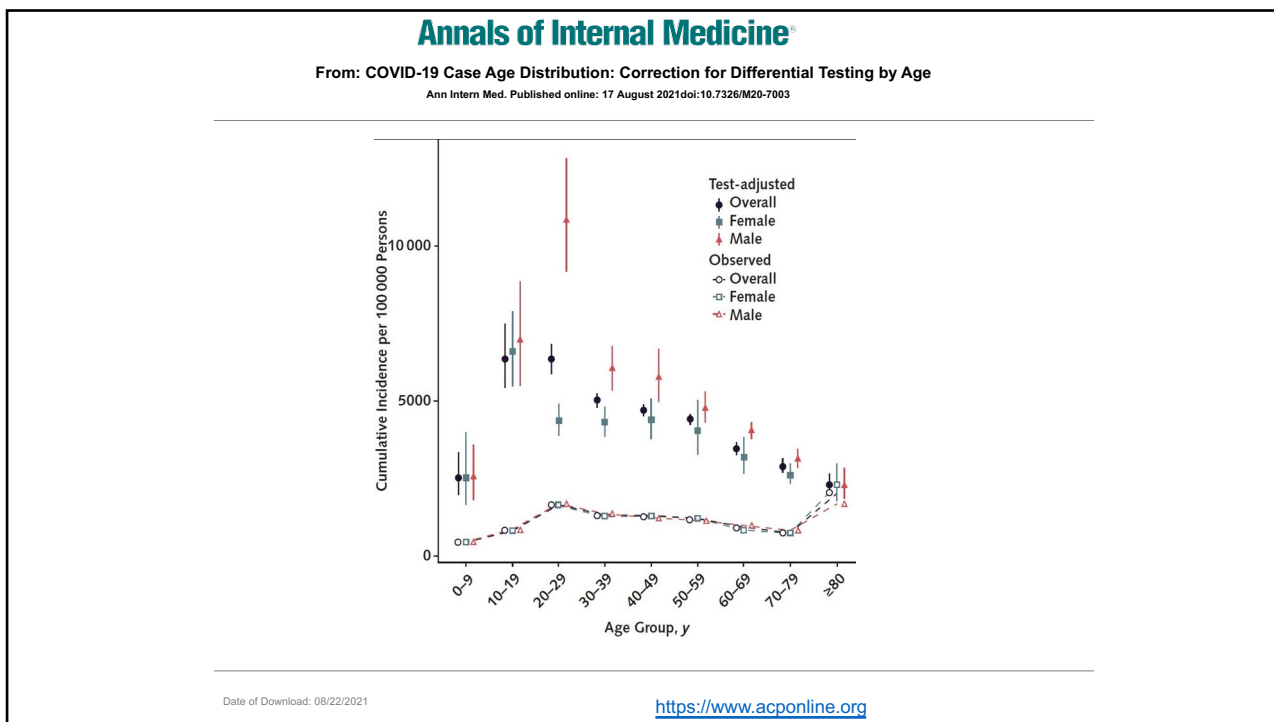
*Nature* **596**, 109–113 (2021) | Cite this article

**326k** Accesses | **6583** Altmetric | Metrics

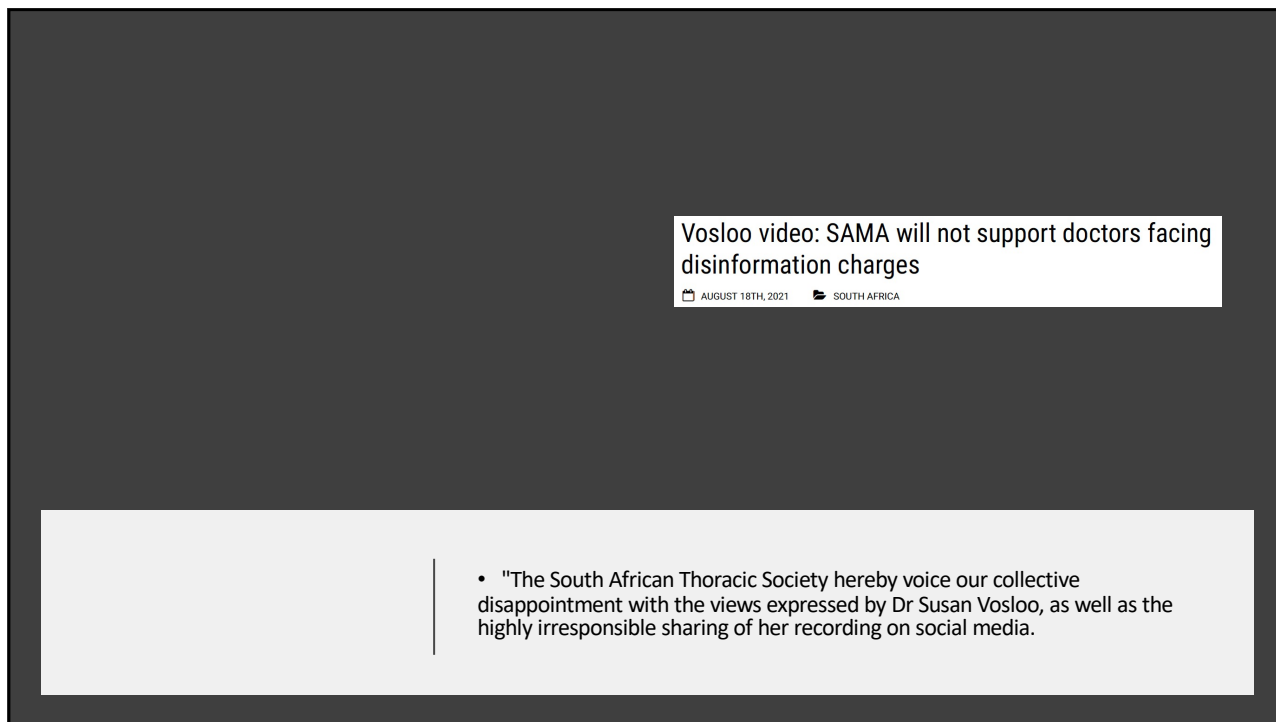
62



63



64



Vosloo video: SAMA will not support doctors facing disinformation charges

AUGUST 18TH, 2021 SOUTH AFRICA


- "The South African Thoracic Society hereby voice our collective disappointment with the views expressed by Dr Susan Vosloo, as well as the highly irresponsible sharing of her recording on social media.

65




Lesson 1  
Washing  
Hands  
Actually  
Works

66

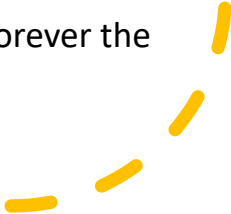
A dark grey arrow-shaped graphic pointing to the right, containing the text 'Lesson 2 It is Good to Listen to Data'.

Lesson 2  
It is Good to  
Listen to Data

67

A large orange semi-circle graphic on the left side of the slide, containing the text 'Lesson 3 We Have Unleashed a Revolution in Medicine'.

Lesson 3  
We Have  
Unleashed a  
Revolution in  
Medicine

- ***"One of the biggest lessons we've learned from COVID is that the scientific community working together can do some pretty amazing things."***
  - In the past: 20 years to create conventional vaccines
  - New messenger RNA vaccines (Pfizer-BioNTech/ Moderna): 11 months
  - The process may have changed forever the way drugs are developed
- 
- A decorative yellow dashed line graphic consisting of several curved segments, located in the bottom right corner of the slide content area.

68

## Lesson 4 We are Super-social Creatures

- All the research shows that people who are more connected are happier and healthier in the long run
- Social distancing—now intentionally changed to *physical distancing* by the WHO
- ***"What we've learned from COVID is that isolation is everyone's problem. It doesn't just happen to older adults; it happens to us all."***

69

## Lesson 5 The Adage 'Age Is Just a Number' Has New Meaning

- ***"This isn't just about the pandemic. Your health is directly related to lifestyle — nutrition, physical activity, a healthy weight and restorative sleep."***
- Age accounted for a higher risk, but comorbidities mattered much more
- **Exercise remains critical.** 38% higher risk for severe COVID in people who avoided physical activity
- "Mobility should be considered one of the vital signs of health"

70

## Lesson 6 Life Won't Be the Same After and That's OK

- "If nothing else, COVID has shown us how resilient and adaptable humans are as a society when forced to change"
- "We've been forced to learn new technologies that, in many cases, have been the only safe way to continue to live our lives and stay connected to our loved ones during the pandemic."

71

## Lesson 7 The Crowds Will Return, but We'll Gather Carefully

- *"Masks and sanitizers will be part of the norm for years, the way airport and transportation security measures are still in place from 9/11."*

72



**Lesson 8  
You Can Hope  
for Stability —  
But Best Be  
Prepared for  
the Opposite**

- *"COVID-19, perhaps more than any other disaster, demonstrated that we need to continue ensuring response plans are flexible and scalable. You can't predict exactly what a disaster will bring, but if you know what tools you have in your tool kit, you can pull out the right one you need when you need it."*
- Which is why the word of the year, and perhaps the coming century, is "resilience."

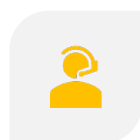
73



"THE COVID-19 PANDEMIC SHUTDOWN ALLOWED US TO RE-EVALUATE OUR POLICIES, PROCEDURES AND SYSTEMS AND REALLY COME UP WITH A BETTER WAY TO SEE PATIENTS IN A MORE STREAMLINED AND EFFICIENT MANNER"



SEND OUT PATIENT FORMS AHEAD OF TIME



CALL THE PATIENT THE DAY BEFORE THEIR EXAM TO GET CHIEF COMPLAINT, REVIEW MEDICATIONS AND PRELIMINARY HISTORY DATA, AND GO OVER COVID-19 SCREENING QUESTIONS



WHEN THE PATIENT ARRIVES, THEIR TEMPERATURE IS TAKEN, THEY SIGN THE SCREENING QUESTIONS FORM AND THEY ARE TAKEN IMMEDIATELY TO AN EXAM ROOM

**Lesson 9. Rethink Practice Flow**

74

## Lesson 10: The Benefits of Telemedicine Have Become Indisputable

- **Say goodbye to routine doctor visits.** Patients who sign up for remote blood sugar monitoring use Bluetooth-enabled meters to transmit results via a smartphone app directly to their health records.
- **We need to push for more access.** More home-based medical help with chronic conditions. But that takes both willingness and a lot of gear, such as Bluetooth-enabled blood pressure monitors and, on the doctor side, systems to store and analyze the data.
- **Group doctor visits may be a way forward.** “Instead of having a few minutes with each person to talk about important issues — like blood sugar testing, diet and exercise — we get an hour or more to go over it,”
- “At every meeting somebody in the group has a great tip I've never heard of, like a new YouTube exercise channel or fitness app. There's group support, too.

75



MAJORITY OF THE PATIENTS WHO PROBABLY COULD  
HAVE BEEN SEEN REMOTELY EITHER DID NOT HAVE THE  
TECHNOLOGY OR THE INTEREST IN DOING SO



MANY OF THE ELDERLY WITH MUNDANE ISSUES EITHER  
COULD NOT FIGURE OUT HOW TO USE THE VIRTUAL  
SYSTEMS OR REFUSED TO DO ONLINE VISITS STATING  
THAT THEY WANTED TO BE SEEN IN PERSON

## Telehealth Won't Work for Everyone

76

# Skills Needed for the Future

Leadership

Flexibility and adaptability

Critical thinking

Tech savvy

Communication and emotional intelligence

Creativity and innovation

77

## Robots boost Rwanda's fight against COVID-19

Anti-epidemic robots can screen 50 to 150 people per minute among other vital tasks

Felix Tih | 20.05.2020



Photo by Rwanda Biomedical Centre

78