TEAM UP:
Defining and Refining Optimal HIV Care During the COVID-19 Pandemic

OVERVIEW

During the COVID-19 pandemic, people living with HIV may have unique clinical, emotional, and social needs. For many long-term survivors with HIV, COVID-19 is the second pandemic that they have lived through. In this multipart program, experts from DAP Health will review key components of HIV care during the COVID-19 pandemic. Through webinars and short interviews, Drs. Christopher Foltz and Shubha Kerkar review COVID-19 testing, diagnosis, and management, with a focus on people living with HIV. C.J. Tobe provides guidance for clinicians, addressing challenges with access to HIV care during the COVID-19 pandemic, as well as patient education and community outreach for medical underserved communities. Finally, Dr. Gover is interviewed about the mental health needs of people living with HIV during COVID-19, including those of long-term survivors and caregivers.

CONTENT AREAS

- COVID-19–Related Complications in Persons Living With HIV (PLWH);
- COVID-19 Testing Strategies;
- Home Care for PLWH Diagnosed With COVID-19;
- Inpatient Care for PLWH Diagnosed With COVID-19;
- Mental Health Needs of PLWH;
- Improving Accessibility: HIV Testing and HIV Care;
- Identifying New Community Hot Spots for HIV Transmission; and
- Outreach and Education: Focus on Underserved, High-Risk Communities.

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TARGET AUDIENCE

This activity was developed for a national audience of HIV specialists, infectious disease physicians, primary care physicians, nurse practitioners, nurses, physician assistants, social workers, and pharmacists.

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LEARNING OBJECTIVES

At the conclusion of this activity, participants should be better able to:

- Describe the current understanding of the consequences of COVID-19 on persons living with HIV (PLWH)
- Discuss strategies to ensure that all PLWH have safe access to COVID-19 testing
- Summarize strategies to ensure that the PLWH with COVID-19 continue to receive optimal HIV care while being treated for COVID-19
- Explain the current management of COVID-19 in PLWH
- Outline methods to address the mental health needs of PLWH during the COVID-19 pandemic
- Identify COVID-19-related challenges that could hinder access to HIV care and retention in HIV care
- List culturally competent opportunities to educate communities at high-risk for HIV and COVID-19 on prevention, screening, and treatment strategies

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Editor's Note: This is a transcript of audio webcasts and interviews recorded in January 2021. It has been edited and condensed for clarity.

OVERVIEW

Christopher Foltz MD: I'm going to be talking about COVID-19 and HIV. To get started, I really want to talk about how the numbers look. So, COVID-19 cases globally are rising. So, a little bit of a busy slide, lots of information on it. But, if we look at the far left here, you're going to see, these are the different regions around the world, the World Health Organization regions, and then really focus on the total numbers of cases, or new cases, sorry, in the last 7 days is this first column. And really, I'm going to point out that COVID-19 cases are on the rise.

If you can see in this third column here, pretty much in the middle, all the percentages here are going up. And this is the change, so you can see we're definitely seeing an increase of cases, and that pretty much echoes as well, deaths. Obviously, in certain countries and areas of the world, the death percentage is a little bit higher. But, outside of just one small, little Western Pacific area, the death rates are increasing as well.

COVID-19 Cases Are Rising Globally

New and Cumulative COVID-19 Cases and Deaths, as of November 8 th, 2020

WHO region	New cases in last 7 days (%)	Change in new cases in last 7 days*	Cumulative cases (%)	New deaths in last 7 days (%)	Change in new deaths in last 7 days*	Cumulative deaths (%)
Europe	1,989,636 (54%)	↑11%	13,144,973 (26%)	25 531 (47%)	↑44%	311,542 (25%)
Americas	1,031,573 (28%)	↑3%	21,509,104 (43%)	17 289 (32%)	↑<1%	656,629 (53%)
Southeast Asia	390,157 (11%)	↑2%	9,641,945 (19%)	5 132 (9%)	↑10%	149,326 (12%)
Eastern Mediterranean	214,072 (6%)	↑18%	3,307,411 (7%)	5 675 (10%)	↑23%	84,305 (7%)
Africa	33,687 (1%)	↑2%	1,357,945 (3%)	831 (2%)	↑30%	30,616 (2%)
Western Pacific	31,370 (1%)	↑19%	765,197 (2%)	377 (1%)	↓5%	15,942 (1%)
Global	3,690,495 (100%)	↑8%	49,727,316 (100%)	54,835 (100%)	↑21%	1,248,373 (100%)

COVID-19, coronavirus disease 2019; WHO, World Health Organization.

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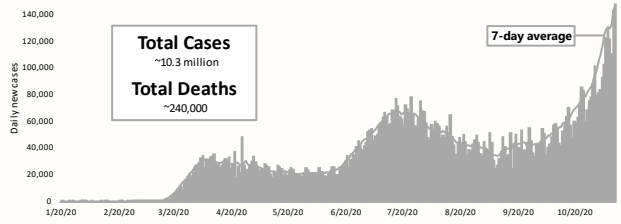
WHO. Weekly epidemiological update - 10 November 2020. November 10, 2020. Accessed November 11, 2020. https://www.who.int/publications/m/item/weekly---epidemiological-update---10-november-2020

Even though this data ended, I think as of November, the trends have continued to increase. If there is a little bit of hope, we've kind of seen a new plateau, maybe a slight decrease, but will that be sustained? I think it is a little early to tell. And this kind of echoes what I just said, essentially. As of November 11, 2020, we've seen continued escalation, or increases in rates. We've had a couple of times where the rates have increased, and then decreased a little, plateaued, but then increased again. And then, as of mid-November, we were at 10.3 million cases in the United States, over 240,000 deaths.

Obviously that will have increased by the time this is published. But, like I said, we did kind of see another recent plateau, which hopefully may be sustained, or may not, it's kind of a little too early to tell. But the big takeaway here is that we're still seeing a lot of cases, and an increase in cases.

Daily New Cases in the US, as of November 11th, 2020[1]



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1. EU Open Data Portal. Updated November 11, 2020. Accessed November 11, 2020. https://data.europa.eu/euodp/en/data/dataset/covid-19-coronavirus-data
2. Johns Hopkin University & Medicine. Updated November 11, 2020. Accessed November 11, 2020. https://coronavirus.jhu.edu/data/charts.

Now I'll shift over to talk about the presentation of COVID-19. So, classically, we've been told fever, cough, shortness of breath. And as you can see, any one of those symptoms is pretty common in both adults and children. If you look at the percentage of adults, it's over 90%, children 70%. We also have a column here, which is specific to people living with HIV. Not all of these questions were the same in all 3, you can see that cough and fever are by far the most common presenting symptom in people living with HIV, and that's pretty much across the board the most common in adults as well. Children a little bit different

with their presentations, but since we're mainly talking about adults, I'll kind of focus on these.

The other main symptoms for all adults would be muscle aches and pain, shortness of breath, sore throat, kind of your common upper respiratory symptoms, but also a big one, loss of taste and smell, about a third of patients. And then gastrointestinal symptoms, a little bit less common, but still common.

Then you can see how that relates to people living with HIV, cough and fever, definitely the highest. Muscle aches, shortness of breath, a little less common, and then the taste and smell a little bit less common than general population, but about the same.

The Clinical Presentation of COVID-19 Is Heterogeneous

Sign/symptom	Percentage of adults[1,2]	Percentage of children and adolescents[1,3]	Percentage of PLWH[4]
Fever, cough, or shortness of breath	93%	73%	NR
Cough	80%	54%	87%
Fever	71%	56%	82%
Myalgia	61%	23%	54%
Shortness of breath	43%	13%	20%
Sore throat	35%	24%	NR
Taste and/or smell disorders	34%	30%	22%-29%
Diarrhea	31%	13%	NR
Nausea/vomiting	16%	11%	8%
Abdominal pain	12%	5.8%	NR
Runny nose	6.9%	7.2%	NR

NR, not reported.

1. CDC COVID-19 Response Team. *MMWR Morb Mortal Wkly Rep*. 2020;69(14):422426.
2. Giacomelli A et al. *Clin Infect Dis*. 2020;71(15):889890.
3. Mannheim J et al. *J Pediatric Infect Dis Soc*. 2020;9(5):519522.
4. Inciarte A et al. *AIDS*. 2020;34(12):17751780.

The takeaway here is everyone, including people with HIV, should receive appropriate counseling to isolate and undergo testing when any of these symptoms are present. So, it's not just the fever, cough, shortness of breath. It can be anything from mild upper respiratory infections, to gastrointestinal infections. So, really any new change in symptoms, or a change off the baseline of symptoms, really should be considered a possible COVID infection until proven otherwise.

There are some less common signs and symptoms as well. Skin manifestations have been reported, so things like rashes, hives, or welt-like lesions, even vesicular, or chicken pox–like lesions. Changes in mental status—delirium, confusion, that's probably a little bit more common in older patients, but still can happen. Dizziness, lightheadedness, can be a sign of volume depletion. Orthostasis also can go along with COVID. Muscle weakness, fatigue, kind of fits with the myalgias, or muscle pains, you see.

Then also pseudo-chilblains, which is essentially kind of like isolated, red fingertips or toes. But basically, this has been described in children, but also in adults, called COVID toes. Essentially kind of a swelling and redness of the distal extremities, specifically in the toes and fingers.

Again, the takeaway point here is any new symptom, any change in symptom, or any atypical symptoms, really should be thinking about COVID, and especially in areas where COVID transmission is very high, which is pretty much everywhere at this point. But definitely something you don't want to miss, even with some of these unusual, or unlikely presentations.

Less Common Signs and Symptoms

- Rash, hives, or chickenpox-like lesions
- Delirium or confusion
- Dizziness
- Muscle weakness
- Pseudo-chilblains on fingertips and toes (“COVID toes”)

Strongly consider COVID-19 testing in people who present with these symptoms, particularly in areas with high rates of community transmission.

1. Couzin-Frankel J. *Science*. 2020;368(6490):455456.
2. Mao L et al. *JAMA Neurol*. 2020;77(6):683690.
3. Recalcati S. *J Eur Acad Dermatol Venereol*. 2020;34(5):e212e213.
4. Yan CH et al. *Int Forum Allergy Rhinol*. 2020;10.1002/alr.22579.

Now to shift to talk about people living with HIV, and COVID-19, and their risk of COVID. So overall, it's thought the incidence in people living with HIV is comparable, or equal to that of the general population. Most evidence suggests there's not an increased risk for COVID in people living with HIV. There's pretty robust data out of some parts of the United States and Europe, different studies that have shown it's fairly equal, at least the incidence, or risk. There has been one study, though, out of San Francisco, that did show a slight increased risk compared to the general population, and it was statistically significant. Hard to say, but overall, most

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of the data is suggesting that it's relatively on par with the general population.

That being said, in people living with HIV, COVID-19 is disproportionately affecting certain minority groups, and this is with or without HIV, really. We are seeing more COVID in certain ethnic groups, specifically in non-Hispanic African Americans, or Black individuals, or the Latinx community. So, just like COVID is affecting those communities in general, it's specifically also in those living with HIV, those minority groups are more disproportionately affected.

Incidence of COVID-19 in PLWH May Be Comparable With the General Population

- Thus far, most evidence suggests that there is not an increased risk for COVID-19 among PLWH
  - Evidence from Spain, France, Boston, and Atlanta suggested no difference in COVID-19 risk among PLWH[1]
  - However, in San Francisco, 4.5% of COVID19 tests were positive among PLWH compared with 3.5% in the general population ($P < .001$)[2]
- Among PLWH, COVID-19 disproportionately affects non-Hispanic Black or Latinx individuals[3]

PLWH, people living with HIV; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

1. Saag M. *AIDS*. 2020;34(12):1757-1756.
2. Sachdev D et al. *J Acquir Immune Defic Syndr*. 2020;10.1097/QAI.0000000000002531.
3. Meyerowitz EA et al. *AIDS*. 2020;34(12):1781-1787.

Looking specifically at risk factors for COVID in people living with HIV. So, one big takeaway here it is treated HIV doesn't appear to be a risk factor for COVID-19. So, that means if you're on HIV medications, and you have a well-controlled viral load, and your immune system is strong, or you have a good number of T cells, you're probably not really at much increased risk compared to the general population.

If any of those things are off, you may be, obviously, because your immune system is not quite fully functional, and definitely some dysfunction could predispose you to COVID. But the biggest takeaway here is people living with HIV have many comorbidities that do increase the severity of disease. And we know people living with HIV, just it being a proinflammatory virus, get a lot of these comorbidities earlier than they would if they didn't have HIV, and those comorbidities are really what put the increased risk for people with HIV.

It's a lot of the same comorbidities we worry about in the non-HIV–infected population, things like heart disease, history of heart attacks, strokes, renal disease, liver disease, cancers, lung disease—all the same diseases that predispose you to COVID in general, make COVID more risky for people living with HIV, because they have those comorbidities.

If you look, there's 2 different sections here. People with commercial insurance, vs people with Medicaid. But if you look at the 2 inner columns, you can see people living with HIV on therapy, vs controls, and almost across the board, in both columns, you can see that the people living with HIV have a higher incidence of these diseases—hypertension, so high blood pressure, cardiovascular disease, kidney disease, cancer—than that of their matched controls. So, it kind of fits with the fact that people living with HIV get these comorbidities sooner than they would if they didn't have HIV, and that is maybe what's driving a lot of this increased risk. Of note though, there's no specific HIV or antiretroviral (HIV medication-related) factors that have been related to COVID severity.

Risk Factors for COVID-19 in PLWH

- Although treated HIV may not be a risk factor for COVID-19, PLWH have many comorbidities that can increase severity of disease[1]
  - In one study, 63% of PLWH with COVID19 had at least 1 comorbidity compared with 38% of PLWH without COVID-19 ($P = .0006$)[2]
- No HIV- or ARV-related factors have been related to COVID-19 severity[2-4]

Comorbidities Among PLWH Compared With the General Population[1]

	Commercial insurance, %		Medicaid, %	
	PLWH on ARV (n = 20,519)	Controls (n = 46,763)	PLWH on ARV (n = 16,020)	Controls (n = 36,791)
Hypertension	31.2%	30.2%	37.3%	33.8%
Cardiovascular events	6.7%	4.0%	10.4%	7.6%
Kidney impairment	8.8%	2.8%	15.2%	5.9%
Cancer	8.0%	4.1%	9.8%	4.2%

1. Gallant J et al. *J Infect Dis*. 2017;216(12):15251533.
2. Viscarra P et al. *Lancet HIV*. 2020;7(8):e554-e564.
3. Ioannia V et al. *Int J Infect Dis*. 2020;101:4951.
4. Inciarte A et al. *AIDS*. 2020;34(12):17751780.

That being said, people who have HIV may be at an increased risk for severe COVID. One meta-analysis that was done did show a 2-fold increase in those more likely to be hospitalized if they had HIV, compared to if they didn't have HIV. And then in one study, specifically, which looked at hospitalized patients who had COVID-19—and this was out of a World Health Organization cohort—people who did have HIV were younger at admission than, you know,

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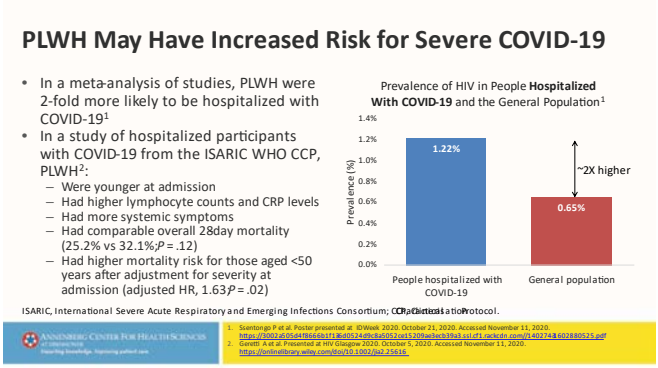
matched controls. They had higher lymphocyte counts, and CRP, or C-reactive protein, levels. That could be just a general marker that they had more inflammation potentially.

More systemic symptoms. They did have a comparable mortality, though. So, the risk of death was essentially the same at 28 days. That was one thing to know. So, maybe the risk of mortality, or severe increased risk of COVID, may not be too much increased.

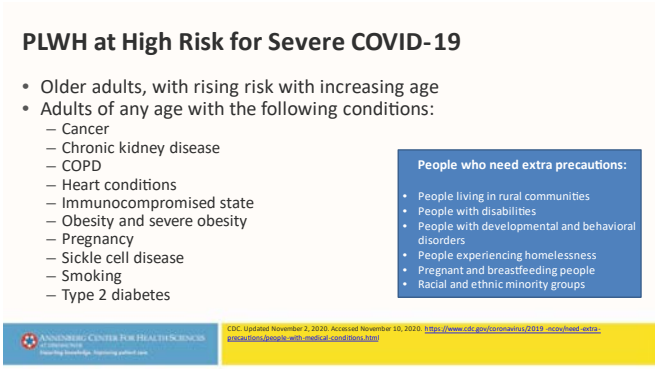
There could be a number of different reasons why we may be seeing these trends. We may be a little bit more cautious with people living with HIV, there may be a little bit more of a reason to admit them sooner, or for less severe cases, just because we're worried about some of the immune dysfunction, and the unknown with COVID and HIV. But good to know that the overall mortality is at least comparable.

This graphic over here really is just pointing out that people living with HIV do have an increased risk of being hospitalized, compared to that of the general population. So, while they may not get COVID at an increased rate, and may not die from COVID at an increased rate, they may be at slight increased risk for more symptomatic COVID, or more severe COVID potentially.



What puts people living with HIV at a high risk for severe COVID? So, age is still the biggest factor. This is essentially with or without HIV, but if you have HIV, older age is definitely going to put you at higher risk. And then much like the general population, certain medical conditions predispose people to more severe COVID. And this includes things like cancer, and specifically cancer where you're on chemotherapy or immune-suppressant or -modifying medications, chronic kidney disease, COPD, or chronic lung disease, heart conditions, any kind of immunocompromised state, whether it be chemotherapy, certain HIV medications, or other immunocompromising medications, anything that affects the immune system could potentially put you at risk for more severe COVID. Obesity, specifically severe obesity, carries a much higher rate. Things like pregnancy, especially pregnancy in the third, or late trimesters. Sickle cell disease, smoking, and then type 2 diabetes, specifically uncontrolled or poorly controlled diabetes.

Then another little caveat is, there are other factors that aren't specifically related to medical problems that also can predispose, and this kind of fits with socioeconomic factors. But people who may need extra precautions, or may need a little bit more monitoring, etc, would be people with other risk factors. Things like people living in rural communities, or maybe more isolated, or separated from medical clinics or hospitals, people with disabilities, people with developmental or behavioral disorders, those with homelessness, pregnant patients, or those breastfeeding, and then, obviously, certain racial and ethnic minority groups, like we talked about before.



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Switching a little bit, to talk about some other interesting trends, or things we may have seen that could affect people living with HIV. This is really related to a risk of a superimposed bacterial pneumonia. So, this is just one kind of case-controlled study, essentially, that people living with HIV, who also tested positive for COVID, may have a slight increased risk for a bacterial pneumonia. We see this commonly with any kind of postviral infection, commonly seen after flu, that they may be at higher risk for bacterial super infections, or pneumonias. And basically, in this one kind of small study, they saw that people with HIV, a small number of them did get a bacterial pneumonia. And even though, regardless of their HIV control—I mean, if they had a strong immune system, were taking their meds—they had slightly worse outcomes.

It's a very small number, only 3 people, but 3 of 3 who developed a bacterial pneumonia actually died, despite receiving antibiotic treatment. So, it just opens the door, makes us think that, while risk may not be significantly much different, there are some additional things that may come into play that the general population isn't quite as at risk for, and this includes things like postviral infectious pneumonias and other pulmonary opportunistic infections. And not just pulmonary, there're other opportunistic infections too that may be more of a challenge for management in people living with HIV, than those without.

Non-AIDS–Related Superimposed Bacterial Pneumonia in PLWH

- PLWH and affected by COVID-19 may have a higher risk of superimposed bacterial pneumonia
- Regardless of HIV control, PLWH who had bacterial pneumonia had worse outcomes
  - In one study, 3 out of 3 PLWH who developed bacterial pneumonia died despite receiving antibiotic treatment
- Therefore, pulmonary opportunistic infections should be considered in the differential diagnosis of PLWH who present with COVID-19

Cooper TJ et al. *HIV Med.* 2020;10.1111/hiv.12911.

Another thing we've also been thinking, and this is more theoretical, but just like HIV is a very proinflammatory virus, COVID-19 is as well. How do those 2 interact with each other? We still have a lot to learn about this. But if we think about specifically neuroinflammation, and HAND, which is HIV-associated neurologic disease, any kind of more inflammation, and these are thought to be diseases of inflammation related to HIV, so any other, whether it's a viral infection or other thing that is going to precipitate—or make more inflammation—in the body could predispose people with HIV to have essentially flares, or problems with this kind of inflammation that could exacerbate these conditions that may already exist.

We do know that COVID, just like HIV, exacerbates all inflammation, it can cross the blood-brain barrier, and create a lot of proinflammatory cytokines, and things that may increase your risk for other inflammation, essentially. What does COVID plus HIV do? I think there's a lot we still don't know, but theoretically, it could make these conditions worse.

Potential for Exacerbation of Neuroinflammation and HAND

- COVID-19 has been shown to exacerbate systemic inflammation and possibly neuroinflammation
- SARS-CoV-2 and other coronaviruses may cross the blood-brain barrier, resulting in elevated inflammatory cytokines in the CNS
- **Currently, the potential link between COVID-19, HIV, and neuroinflammation or HAND is purely theoretical**

Williams ME et al. *AIDS Res Hum Retroviruses.* 2020;10.1089/AID.2020.0136. doi:10.1089/AID.2020.0136

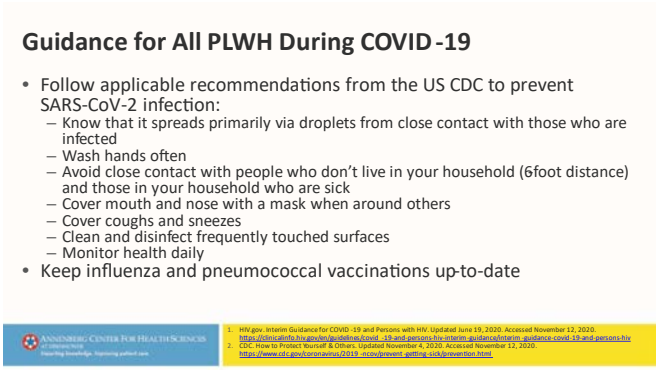
Steps people can take who are living with HIV during COVID, to stay healthy, stay safe. Basically, following all the same CDC guidelines right now is very, very, very important. With so much COVID, and coronavirus spreading in the community right now, these things are seriously the most important things we can do.

We know this spreads primarily via droplets. So, not maintaining close contact with people. So, social distancing by at least 6 feet, washing hands, really

only staying close to people in your household. Staying away from other people who are sick, minimizing exposures in grocery stores and things to absolute minimums, all those kinds of things we can do.

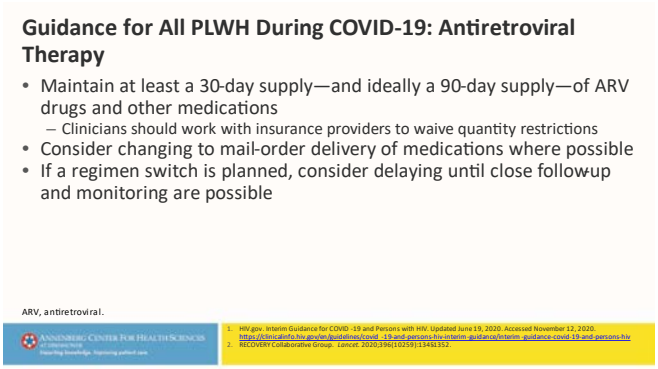
Covering our mouth and nose, when we're around other people, and we're sneezing, or when we're coughing, washing hands with soap and water, disinfecting, or using an alcohol-based hand sanitizer for disinfecting. And then monitoring symptoms daily, making sure we're not experiencing new things. A lot of places are doing the temperature checks, and screens. I know a lot of patients, and people who are doing that on their own, too. All these kinds of things will help us stay safe.

The other big thing, obviously, is COVID is not the only respiratory diseases that we have to worry about. It is also flu season, and even though we have suppressed flu significantly, it is not going to disappear. So, making sure you're vaccinated, and using all the preventative measures to prevent other respiratory infections. So, getting your flu shots every year, getting pneumonia shots when you're due for those, very important.



Some specific guidance for people living with HIV during COVID-19. So, antiretroviral therapy, this has been a big concern, I know, in a lot of patients, but definitely to maintain at least a 30-day running supply of your medications. You do not want to be low on meds, needing to go in to get an appointment urgently. Most clinics and hospitals are... well, not hospitals, but most clinics and outpatient settings aren't set up for quick turnaround, especially with COVID, and the restrictions we have, staffing, all this stuff, it's a little more difficult to get an urgent, or immediate, appointment than it may have been in the past. So, really making sure to plan ahead is very, very important. So, having your medications for a large supply—30 days, definitely, if not more, 90 days. We try to give out as much as possible.

Then using some of these new modalities that we have, using telemedicine, or being able to delay appointment times, or kind of stretch out longer between appointment times, phone visits, nurse visits, all these things that we haven't historically been doing, as well, or been doing often, are ways to keep people engaged in care, which is ultimately the most important part here.



This kind of further talks about actual in-person clinic and lab visits. So, really weighing the risks and benefits of attending specific in-person clinics. We definitely have made a push for this in our highest-risk patients, our HIV-positive patients with lots of comorbidities, who are over 65—we are really, really encouraging them to use telemedicine.

We have a mobile laboratory service, so multiple different ways we can prevent them from really getting exposed to the highest risk, which is essentially going out to public clinics, public places, really minimizing that as much as possible. And I mentioned telehealth visits, and then really delaying, or

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postponing care as much as we can in people who are very, very stable, have very suppressed, or undetectable viral loads, and normal T cells, normal labs. Really not seeing those people unnecessarily has been very important.

Guidance for All PLWH During COVID-19: Clinic and Laboratory Visits

- Weigh the risks and benefits of attending HIV-related clinic appointments, including:
  - Extent of local COVID-19 transmission
  - Health needs to be addressed
  - HIV status
  - Overall health
- Telehealth visits may replace in-person visits
- For PLWH with suppressed HIV viral load, routine medical and laboratory visits may be postponed, as possible

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HIV.gov. Interim Guidance for COVID -19 and Persons with HIV. Updated June 19, 2020. Accessed November 12, 2020. https://clinicalinfo.hiv.gov/en/guidelines/covid_-19-and-persons-hiv-interim_guidance/interim_guidance-covid-19-and-persons-hiv

Some additional considerations. It's not just about medicines, we've known that. Really helping with food, housing, transportation, childcare, all this stuff has been important for the general population, but especially those living with HIV who may face a higher level of socioeconomic suppression, essentially. But assessing mental health conditions, COVID is not the only pandemic, we're seeing a massive increase in depression, anxiety, and all these things can affect people's engagement and care. So, really making sure you address these conditions, and refer out to specialists as needed.

Assessing patient safety, there has been an increase in gender-based violence, violence against women during this time. So, really screening for these, for relationship violence, and making the necessary referrals, or law enforcement involvement, as necessary. And also reproductive planning, especially in those of childbearing age, with pregnancy—we're learning a lot about this—this has been a pretty hot topic recently, but planning for contraception, being able to get vaccinated, and a lot of different things. So, making sure to not forget about reproductive planning in female patients.

Guidance for All PLWH During COVID-19: Additional Considerations

- Connect PLWH who need assistance with food, housing, transportation, or childcare with resources, including navigators
- Assess and address mental health and substance use disorders, which may be exacerbated by stress and social distancing
  - For those who screen positive, refer for additional (virtual) consultations
- Assess patient safety at each encounter, as there is evidence that gender -based violence against women and girls may be exacerbated during COVID -19
  - For those who screen positive, offer connection with resources
- Discuss reproductive planning with those of childbearing potential, including information about what is known and not known about the impact of SARS -CoV-2 infection during pregnancy and provide patient -centered preconception and/or contraceptive counseling

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HIV.gov. Interim Guidance for COVID -19 and Persons with HIV. Updated June 19, 2020. Accessed November 12, 2020. https://clinicalinfo.hiv.gov/en/guidelines/covid_-19-and-persons-hiv-interim_guidance/interim_guidance-covid-19-and-persons-hiv

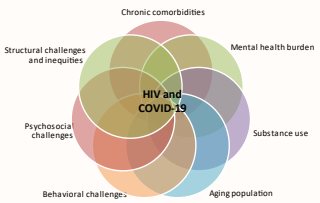
This is just a really nice graphic that kind of ties everything together, and a good way to end this talk here. So, looking at what we call a "syndemic," which is kind of a good term to use, but basically, when 2 epidemics interact synergistically, and increase the burden of disease in a specific population, and this is a great graphic to describe what's going on right now.

We've known about HIV for the last 30 years, and its multiple effects on the population, and the individual. And we're just now finding out about what COVID can do in that same realm, over the last year, and really how these 2 diseases interplay, and a lot of the same issues we've had with HIV over the years, and getting patients engaged in care, and some of the long-term effects, we're now just starting to see with COVID as well. So, you can see with the comorbidities, the mental health burden, the substance abuse, aging issues, behavioral stuff, I mean, all of these have such a tight interplay, and we're learning so much between both diseases, from how these interact, and how the 2 disease processes coexist.

COVID-19 and HIV: a Syndemic Framework

A **syndemic** is 2 or more epidemics that interact synergistically to increase the burden of disease in a population.

"To understand the manifestation of COVID -19 in the lives of PLWH, it must be viewed alongside HIV and other health conditions that already exist in this population."



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Shiau S et al. *AIDS Behav.* 2020;24(8):22442249. doi:10.1007/s10461020-02871-9

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The big key point here is that the incidence of COVID-19 is currently rising and has been since we started. While we may see some different peaks, or plateaus, or even decreases, we are still very alarmed at the rate at which we're seeing new infections out in the community.

When it comes specifically to HIV, it's good to know that if you're well controlled, that itself is not a risk factor, independently, for getting COVID. However, when you do have different comorbidities, especially comorbidities that come along with long-term HIV survival, that may increase your risk of [COVID-19] and increase your risk of more severe [COVID-19].

Still more information coming out about this, but definitely things we're actively paying very close attention to. And then finally, if you do get hospitalized, there may not only be severe complications related to COVID, but unique things that HIV may bring along as well. Super infections, opportunistic infections, all things that we need to remember.

TESTING

What algorithms do you use to prioritize patients for testing?

Christopher Foltz, MD: Locally, at least at our clinics, we've always prioritized symptomatic patients. So that's obviously our biggest priority. And the reason is, we obviously want to get those people tested; if they are positive, we want to get those people isolated as quickly as possible, so they can kind of stop the chain of spread. So, symptomatic patients are our first priority.

Second would be high-risk exposure. So, those are patients that essentially, definitely had some sort of contact with people who tested positive for COVID, may not have known at the time, and are at high risk for developing disease. Third would be people who had low-risk exposures, potentially, but are high-risk patients. So, people with risk factors for COVID, but not as high of a risk exposure potentially. And then kind of last on the list is people with no exposures, or people who were asymptomatic. These are the people who kind of just want to know if they've been infected.

We definitely test all these people, but based on the numbers we're seeing in the community, and the rates at which we're seeing, we prioritize who we're testing based on that. So, it's kind of a constant flow, but definitely symptomatic, high-risk exposures are where the priority is. Low-risk exposures in high-risk patients, or kind of no exposure, just wanting to know is kind of at the bottom, but I would say 90% of what we do is symptomatic patients. Very few people are just coming in to get tested for no reason these days, but it still happens if we're able to do it.

Can you give some examples of those risk levels for exposure, and for patients who are at risk for COVID?

Christopher Foltz, MD: High-risk exposure would be within 6 ft of someone, with one person not wearing a mask, and for a time of at least 15 minutes. It's pretty much the highest risk exposure you can be, with a confirmed case that we know to be COVID positive, obviously, because that's going to give more than enough time for, obviously, the virus to potentially spread to the other person—very, very, very high risk for getting disease themselves.

A low-risk exposure would essentially be when any one of those things isn't quite exactly it. So maybe both of you were wearing masks, it was less than 15 minutes, it wasn't within 6 ft, but definitely still with a confirmed-positive person, but just not quite the same level of contact, or amount of time with contact.

Then a very low-risk exposure to me would be like, I was at the grocery store, Costco, one employee tested positive. I mean, yes, you may have been exposed, but your chances are a little bit lower than being in direct

contact with someone. So, those are probably much lower risk. Now, obviously, high risk, too, would be like a family member in the same house, things like that, you're going to have a lot of contact with those people.

What we consider a low-risk patient vs a high-risk patient, pretty much, are risk factors for COVID. So high-risk patients being those over 65, those with chronic medical conditions, specifically heart disease, lung disease, or any kind of immunosuppressive condition. Specifically, in the HIV population, those not on medication, those with weaker immune systems, or lower T-cell counts—those people can be considered higher risk.

Low-risk patients would be your young, 22-year-old, with no chronic medical conditions, who if he were to get COVID, would be very unlikely to develop more severe disease. But, that's pretty much how we kind of tier it out.

When it comes to actually testing, and we have a call bank, who answer all these questions, and does really good with it, my personal thing is if you're a high-risk person, and you were in a high-risk or a low-risk exposure, you should definitely be tested. If you are a low-risk person and you were in high-risk exposure, you should definitely have been tested. But if you're in a low-risk person with a low-risk exposure, do you always need to get tested? Probably not. That's when you can just follow the CDC guidance, essentially, to home quarantine, kind of isolate, and if you meet your 10 days without any symptom development, you're probably fine. You don't always need to get tested, but definitely could get tested and know.

With current record-high COVID-19 infection rates, hospitalizations, and deaths in the US, what are you and your organization doing to address this "third COVID-19 wave" in terms of testing?

Christopher Foltz, MD: Testing and maintaining testing has been one of the big challenges. So, early on, at least, when we were testing people, we would run into resource issues, in having enough test kits, having the ability to send these off, and then return them in a normal time. So, we've had to get creative, using different lab companies, getting resources, slightly different than the standard of collection things. Many places have had to do this. But just really, resource stability has been a big thing. Luckily, most of these issues have been resolved, or have been pretty steady. But early on, we definitely were facing problems with not having enough test kits, having a very long turnaround time. So, I said a lot of that has been fixed, thankfully, with a lot of our new testing.

One thing we've done is the advent of rapid antigen testing. So, we have the ability to test our symptomatic patients, especially high-risk patients, and get results in 15 minutes, and that has made a huge difference for not only isolating, and quarantine, but also additional monitoring parameters, and things we have to do in people who are higher risk.

Once we know they have COVID, they're now potentially eligible for certain therapies that they may not have gotten to prevent them from getting into the hospital. So, we have connections for that as well. So really knowing the diagnosis early can make a big, big difference, not only in stopping the spread, but also in that individual, actually helping them, so that's been a big thing. Getting rapid testing has been huge.

Luckily our send-out testing, although it is still the more sensitive, and better diagnostic test, is still coming in rather quickly. There was a time when it was 10 days for a turnaround, and as you can see, in a quarantine time period, that's 14 days, getting the test back in 10 days isn't super helpful. But, now it's down to about 48 hours, so that's been helpful as well, so we can get people isolated, and quarantined, and help make sure they maintain that full quarantine.

We weren't seeing that a lot when people had to wait 10 days. Before, they got a phone call, and people would be out at the store when we called them, doing

this or that, and having to tell them they're positive wasn't ideal. But luckily, that's helped a lot with the faster turnarounds. So yeah, I would say those are probably the biggest things, is just the ability to test people, and to test them fast, has been probably the biggest thing that's changed probably in the last 2-3 months here, at least at our clinic locally.

For patients who come back with rapid tests negative, how do you make decisions about who to retest with a more sensitive test?

Christopher Foltz, MD: First thing off is because the rapid tests are a little less sensitive, the recommendation is that those really should only be used for symptomatic patients. So already, if you're not symptomatic, you should definitely be using the more sensitive tests, because you're much less likely to be positive if you're asymptomatic. Doesn't mean you won't be, but you are. So, really the rapid testing is for symptomatic patients.

What our current policy and protocol is, if you're symptomatic, and it is symptoms that we're concerned about, or you're high risk, if your first test is negative and you're still symptomatic at 48-72 hours, we will actually recommend a repeat test with PCR, the more sensitive tests. So, then if you get 2 negative tests, essentially an antigen and a PCR test, we're much more likely to say this is not COVID.

We do recommend retesting with a PCR, full nasal swab test, if your first antigen test is negative and you are still symptomatic 2-3 days later. So, we are definitely retesting people, and we have found a few people that do test positive on the second test and did test negative the first time. So, a positive test is pretty reliable in a rapid antigen test, but a negative test, you do have to be a little wary about, especially if classically and clinically they're fitting all the signs of COVID-19. You would definitely not want to miss a diagnosis there, just because your first test was negative. So, definitely retesting is important in the right population.

What are the symptoms that you're looking for when you're evaluating who's symptomatic, and who's not?

Christopher Foltz, MD: Much pressure, or emphasis, has been put on the fever, the cough, the shortness of breath. Most patients will have one of those 3 symptoms, but not everyone has. Definitely, I've seen my share of no pulmonary symptoms at all, only GI symptoms, almost no symptoms completely, definitely no symptoms, and then weird symptoms, like allergy like symptoms.

My personal gestalt about this is any change in symptom from your baseline, or any new symptoms, is COVID until proven otherwise. If you get a nasal, or like a scratch in your nose, and you get a negative test, that's probably not COVID... Doesn't need to be retested, as long as that goes away in a day—very unlikely to be COVID. But, if you have a new runny nose, and it's not crazy allergy season, and this, I mean, this easily could be COVID, and you could just be having the mildest of symptoms.

These are the people who we are missing, who don't think it's anything, because it's not a fever; it's not a cough; it's not severe shortness of breath; it is just allergy like. They're positive, they're out spreading disease, thinking they don't have COVID. That's a big missed opportunity there. So yeah, I highly recommend that any change of baseline symptoms, or any new symptoms, whether it be, like I said, runny nose, sore throat, cough, shortness of breath, GI symptoms, like nausea, vomiting, diarrhea, stomach upset, anything that's different or new. Really, COVID testing should be definitely considered in those patients.

How do you distinguish COVID from the flu or a cold, based on symptoms?

Christopher Foltz, MD: We actually do rapid flu testing, too. So, unfortunately, with the flu, there's so much overlap with COVID, and it can be very, very

similar. Usually, with the flu, you get a more kind of constellation of symptoms. So, it's more than just one thing, or a couple of things. So sometimes you can kind of see flu, but just given how little flu we've seen, period, flu has definitely been much less of a concern, just because all the masking, social distancing and so on, we've suppressed flu significantly.

Will that last forever? No. Flu will definitely come back as soon as we stop all this stuff again. Maybe at a slightly different season than we're used to seeing it, but right now, we are still dual testing. So, if you come in, and it's flu season, and you have these things, not only are you getting tested for COVID, but you're also getting testing for flu.

Luckily, we have rapid testing for both, so, it's not up to the clinician, or the nurses, to have to distinguish that, thankfully. We have much better molecular technologies to do it for us. But, yeah, I mean, the take-home point there is, it could be the same, it could be very different. The symptoms are so similar that—same thing, any new symptom, new thing, get tested, whether it's for flu and COVID, or just for COVID. That is part of our testing algorithm, is to test everyone for flu as well.

For patients who test positive, what information do you give them and how do you counsel them?

Christopher Foltz, MD: It kind of depends on the specific patient. So, say a lower-risk patient, younger person, milder symptoms, comes in. One thing that kind of separates us is our clinic is not just a test and leave. Every person is seeing a nurse, they're getting vitals taken, they're getting this stuff, getting a little bit more of an evaluation than some of these drive-through testing places, etc. So, I think that separates us a little bit. So, we kind of can risk stratify, and kind of do a little bit more based on vital signs, based on health history, all the information we gather in the visit.

Low-risk patients, younger patients, mild symptoms, they get a little bit of counseling, they'll get a handout from the CDC, and then, if they are for sure positive, we do follow-up calls, and stuff on patients. Usually one for sure. But based on your risk factors and stuff, we'll do some extra. So, we're not just kicking people out the door, we're definitely following them up as needed.

For our higher-risk patients—older patients, patients with chronic medical conditions—because we have a stand-alone clinic that's dedicated to this, sometimes we bring patients back in. So, I've had patients come back every couple of days, if necessary, to get their vitals checked. We'll have multiple calls, almost daily, sometimes the nurse will be calling them just to check in on them, making sure there's no progression of symptoms, or anything they should be concerned about. And then we obviously also link them to the public health department, so they're getting another level of care, as well there, from people checking in.

Then what's nice now is because we do have some therapies that are indicated for people, not necessarily inpatient, or in the hospital, we do have some options. So, if people start to get worse, in an effort to avoid hospitalization, we can treat them with some of these outpatient monoclonal antibodies, we can do some courses of medication like steroids as an outpatient. So our setup has allowed us to do very close monitoring, and start therapies before having to send someone straight to the hospital.

We do get a good amount of follow-up thankfully, with the way our clinic is set up. I know that's not classic everywhere, but it has been nice that, especially for our highest risk patients, and we, here in Palm Springs, working in an HIV clinic, we have a lot of older patients with HIV, and tons of comorbidities. So almost all, if not, most of our patients, are in that high-risk category, and do, when they test positive, have a lot of concerns and questions. And thankfully we've done pretty well, being able to mitigate a lot of that.

For patients who have tested positive, when do you retest? Or do you retest?

Christopher Foltz, MD: That's a very good question, another hot topic. So universally, generally it's not recommended to retest anyone. And the reason is how the technology works for the testing. It is PCR-based, so essentially, it's just amplifying genetic material from the virus, so that can't differentiate active infectious virus, vs just genetic junk, I like to say.

Most people, after a COVID infection, will continue to test positive for weeks after the initial infection, and it does not mean they're still infectious. So, that kind of fits with the quarantine guidelines by the CDC, that essentially once you complete your quarantine, or your isolation period, which now is 10 days, as long as the last 72 hours is symptom free, you're not considered infectious anymore.

Infectiousness travels with symptoms. So, as soon as symptoms end, infectiousness usually ends as well. So, usually, as long as you sit out that period, you're not considered infectious still, and there's been tons of studies that have looked at actually being able to culture this virus, and really how we differentiate if someone's still infectious is can we culture and grow this virus?

Most people after being symptom free, in 10 days, I think almost 99 point something percent are culture free, so meaning you really don't have infectious virus still. And we know in some studies, people will continue to swab test positive for I think 3, even 4 months out sometimes. It's usually in people who have some sort of immune dysfunction, some sort of reason why they're not clearing this completely, but those people still aren't considered infectious, and even their quarantine period is typically only 4 weeks, not beyond that.

Generally, unless you have a change in symptoms, have new symptoms that develop after the period where they got better, or had another very, very high-risk exposure, and a high-risk patient, would we necessarily recommend retesting. So, there are some instances that we do, but I would say the majority of time, retesting is not medically recommended. A lot of times it is recommended from other places, like the clinics not letting you in before you get a test that's negative, getting a procedure before a test is negative, getting on an airplane before a test is negative. But, at least from a retesting standpoint, that's more for peace of mind, I think, than it is for actual, ongoing infective infectiousness, I guess, of the virus. So generally, no retesting recommended unless some sort of good reason why we would want to do it.

For patients who test positive, and are quarantining at home, what symptoms do you tell patients to monitor?

Christopher Foltz, MD: This kind of goes back to the top 3. So really, the fever, cough, shortness of breath. So, if these symptoms get very severe, and I'm talking about fever greater than 102 degrees, for more than 3 days consecutively, unable to be broken by [acetaminophen], or other medications, that would be a pretty concerning thing. Shortness of breath, that develops just sitting at rest, so not with activity. So, you're just sitting there on the couch, feeling very short of breath.

Thankfully, a lot of places have ramped up production of at-home monitors. So, people are getting pulse oximeters off Amazon, being able to monitor their oxygen levels, that has been a big help to get people to self-monitor. Apple watches do it, all kinds of stuff, people are being able to self-monitor, which has been nice, because one of the big things is what we call silent hypoxia, or people may not know their oxygen levels are low, they feel totally normal, and this whole time they've had abnormal oxygen levels, and that can obviously predispose to some pretty bad complications down the line.

Having those devices with the ability to monitor is helpful, but just monitoring symptoms is important. With a thermometer, you can monitor your temperature at home, and those are the things that I really... Vitals are a big one. I know you can't obviously do all those yourself, but you have monitoring heart rate, monitoring respiratory rate, things patients can be taught how to do at home. Thermometer, monitoring fevers, and then really just watching that trend.

If things are getting worse, or progressively changing, that's obviously reasons to seek care. If things are staying where they're at from the time you were evaluated, and then overall getting better, probably not as much. But yeah, I mean, home monitoring, thankfully has been something we've been able to relatively do well here, but even without these resources and stuff, there's still plenty of things that patients can do, and providers can teach their patients to do at home, for really when to be alarmed.

What type of symptomatic management can help patients with mild or moderate symptoms?

Christopher Foltz, MD: Yeah, so a lot of the same stuff that we would do for most common colds, and common flus. Any kind of over-the-counter medications with antipyretics, things like [acetaminophen] are very helpful for fevers, the aches and pains, ibuprofen or [acetaminophen] can help. So, taking those things.

Being careful not to take additional [acetaminophen] and stuff like that on top of other medicines you may already have that have [acetaminophen] in them, like certain pain medications will—or a lot of these combination cold and flu medications will—have extra [acetaminophen] in them. So, just be wary of that, and I always tell people before starting something new, or if you have questions about, definitely make sure to talk to your doctors, because there are certain health conditions that predispose people to taking certain medications over others. So, that's always a very important conversation to have.

Then when it comes to prescription strength, or prescription medications too, there's a lot of things that we can help as well. Things like inhalers to help people with breathing, prescription strength cough medications that help with the cough, muscle relaxers or things with aches and pains.

Then really if people are more severe, we have started to use more advanced things, like the steroids, or the dexamethasone. I know a lot of people are starting to use that in high-risk patients in the outpatient setting to prevent progression of disease, and then also the new monoclonal antibodies that we have available that we can do infusions of in our high-risk patients as well. Essentially, if they test positive, and meet certain criteria with risk factors, you can go and get an hour infusion of a monoclonal antibody, in hopes that that will prevent you from having disease progression and having to be admitted to the hospital.

There is kind of a step-up level of different therapies we can offer, but it starts with the basic over-the-counter medications, and then if those aren't cutting it, or helping with the symptoms, then more higher-level prescription medications, and then more advanced, more like biologics, and steroid medications we can use.

Are there any cases where testing would not be appropriate?

Christopher Foltz, MD: So yeah, I mean, in certain places where testing resources are readily available, they've actually made some fairly good guidelines about this. So, kind of going back to that low-risk person, and a very low-risk exposure. So, classically, I'll use this example, I think I had a 24-year-old with no medical conditions come in to get tested, and he had no direct exposures, but had driven by a grocery store that had an employee test positive, and basically wanted to know if he needed to be tested. That to me

would be very, very low risk. Obviously, he didn't have any direct contact, and is very healthy... Otherwise no risk factors for advanced disease. So, that person probably doesn't need to be tested.

They do actually make guidelines. So even if you do have exposures, or potential exposures, because I'm sure many people now have gotten a letter in the mail that says they may have been exposed when they went to their doctor, this when they went to their lab, a lot of people don't know, and even the places don't know how high risk that is. But there actually are guidelines.

Even if you did have an exposure, you don't always have to be tested. So, you can choose to just sit at home and quarantine, if you don't develop symptoms within 10 days, they say you're okay. You're clear to come out. So, that would be a reason to not test. You can obviously move that isolation and quarantine period down. So, if you do get tested—within 5-7 days from an exposure is when they recommend—it will take a while to mount enough of the virus for our lab test to be able to detect it. So, if you do have an exposure, and you do get tested within 5-7 days from exposure, and that's negative, you can actually end as well.

If you choose not to be tested, you can just wait out an additional 5 days, to make it a total of 10, and that would be a reason to not get tested. I would not recommend that if you're a high-risk patient, or if it was a high-risk exposure. But, if it's a low-risk exposure, and relatively low-risk person, that would be a good reason why you could not get testing.

Right now, as long as resources are able to maintain, there's really no reason not to test, even if we are testing completely asymptomatic low-risk exposures, if we have the ability to. And the reason is, we will miss the occasional completely asymptomatic low-risk person, who we never knew had COVID, and if we can stop them from transmitting, that's a win. So, test those people even if we can, obviously though, our priority is still the high-risk exposures, and the symptomatic people.

DIAGNOSIS

For patients with suspected COVID-19-related complications, what are the initial evaluation steps and tests that are done?

Shubha Kerkar, MD: The most important part of evaluation of any patient who comes in with the typical symptoms, we try to, first of all, isolate based on a triage of questions and address what their chief complaint is and try to diagnose the disease. So we do have some basic screening evaluation, isolation, check the oxygen levels and do the testing as quickly as possible for PCR COVID-19, if the index of suspicion is high. But we also run some other antiviral panel testing for RSV, influenza A and B, think about if it's a non-HIV patient, to screen people for HIV. Even though the index of suspicion may be low, screening, definitely, we try to do. Most importantly, we can identify most of the time by 80%, 90%, what the diagnosis is, based on history.

What is the role for rapid, lateral flow assay testing in patients with suspected COVID-19 in hospital?

Shubha Kerkar, MD: Yes, the screening test, the PCR test is very critical. And we have point-of-care testing, as well as testing or validating negative tests. For example, if the point-of-care test is positive, we don't have any problem, they are specific and sensitive and good to go. If a test is negative and the index of suspicion is high, we do a validation test, which takes somewhere between 2 and 3 hours. And it's done on a different platform.

We have 2 different instruments, like Luminex and BD MAX, and they are our validation testing. So we do that. But that takes about 2-4 hours. But everybody is tested by the point-of-care test immediately, which

means instantly you get the results. And yeah, I think in a hospital triage where you have real stress on triaging patients and getting them in or out, it is a challenge.

Can you give some examples of when a clinician might suspect that a patient has false negative PCR results?

Shubha Kerkar, MD: False negative test results are about anywhere between 28% or 30%. And what we have found in our own hospitals is that when we validated these negative tests with the more-involved tests—and even by sending them this from the same sample to say, LabCorp or Quest or other labs—we didn't find that they came up with a different test. So all negative tests, nearly 99% of the time were negative by the validation. Even so, there are people that have the disease, but have low viremia and can have a truly false negative test.

On the other hand, there is also noninfectious virus that's picked up by a PCR test and they don't have the disease. So we do see both. In fact, what we are seeing a lot of, is that someone is positive, they've been positive back in October, they already passed the process of 14 days and recovered. And they came back with another problem and were tested positive, but did not have the pneumonia. And so, these things really are very challenging to triage patients appropriately to isolate them. And yet, sometimes only history, index of suspicion, other inflammatory markers, CAT scan sometimes, consultation, even antibody testing. So we do see some of that, and will be beginning to see this more now, because now we are out in this pandemic for a year now or more.

What additional laboratory tests are recommended for patients with confirmed COVID-19?

Shubha Kerkar, MD: First of all, the CBC with lymphocyte differential, we do look at that. We look at C-reactive protein. We look at LDH ferritin, D-dimers—this would be a blood panel. Then CT scan. I mean, chest X-ray, almost everyone gets, and if they are hypoxic we can have them get a CT scan. So a CT scan is quite effective in recognizing the ground-glass patterns and specific patterns that will correlate very highly with other markers to raise the index of suspicion that even sometimes in a PCR-negative patient—you cannot explain it. And so those are the patients that we sometimes see, and this is not common. Majority of the time, the PCR test is positive.

The test is done, but as you may know, that the PCR test can be positive after the patient has recovered from COVID disease for up to 90 days. Now, a study was done that was published from a public health standpoint, I think it was a Korean CDC that published, of 285 individuals who recovered from COVID, who were tested with a PCR test after 14 days for up to 90 days, as well as over 790-some individuals who were direct contacts of those positive patients. They were all tested by PCR and found that none of the contacts, the 790, were positive, but the 285 that continued to test positive for PCR for up to 90 days, the interpretation of that study, based on what we found, was that these were a noninfectious virus, perhaps picked up by a PCR test. It's exquisitely sensitive in picking up dead virus, decayed virus, genetic material from the virus. So this is what we are beginning to recognize now, because there are people who recovered and yet have a positive PCR test.

In patients with COVID-19, what are common lab abnormalities?

Shubha Kerkar, MD: We saw a lot of coagulation abnormalities early in the year, around May, June and July timeframe. And we saw strokes, we saw thromboembolism, DVTs, especially even in the arm or in the brain, we saw strokes. Now at the time we didn't think, or we didn't know 100% if they were COVID-related. And anticoagulation, it has been a sort of evolving learning for us. And yeah, we are now doing prophylactic anticoagulation on all patients. First of all, all patients who are admitted to the hospital do have to be at bedrest and pretty much are

not physically active and are at risk, therefore. And so, if their D-dimer is elevated, we actually anticoagulate them at treatment dose, yes.

Have you incorporated point-of-care ultrasound into your practice for evaluating patients with suspected or confirmed COVID-19?

Shubha Kerkar, MD: No, I have read about that, but I don't think we are using it on a regular basis. Once your diagnosis is confirmed—and we have exceptions to the rule, but majority of the time—we don't need to use anything more than that. I think our challenge is more about how, once we diagnose, we really have to race against time to make sure that the interventions are implemented in those windows. These are very narrow windows. If a patient comes in and says, I've been symptomatic for 5 days, vs 2 days, that actually is very, very helpful for us to know when the time zero is. And so the challenge of racing to make a diagnosis, and then interventions, is to see how we can prevent them from progressing, number one. Progressing or ending up in the ICU is the other part.

MANAGEMENT

Shubha Kerkar, MD: The NIH definition of COVID-19 disease has really a spectrum, from asymptomatic disease to mild and moderate disease, and then severe disease with progression to respiratory failure, multiorgan system failure.

NIH Definitions of COVID-19 Disease Severity

Severity	Characteristics
Asymptomatic OR presymptomatic	Positivity for SARS-CoV-2 using a virologic antigen or PCR test but with no symptoms consistent with COVID-19
Mild	Presence of signs and symptoms of COVID-19 but no shortness of breath, dyspnea, or abnormal chest imaging
Moderate	Presence of lower respiratory disease during clinical assessment of imaging and with SpO_2 ≥94% on room air
Severe	SpO_2 <94% on room air plus PaO_2/FiO_2 <300 mm Hg, respiratory frequency >30 bpm, or lung infiltrates >50%
Critical	Presence of respiratory failure, septic shock, and/or multiple organ dysfunction

bpm, beats per minute; COVID-19, novel coronavirus disease 2019; NIH, National Institutes of Health; PaO_2, partial pressure of arterial oxygen; FiO_2, fraction of inspired oxygen; PCR, polymerase chain reaction; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2; SpO_2, saturation of oxygen.

NIH. Clinical Presentation of People with SARS-CoV-2 Infection. Updated October 9, 2020. Accessed November 12, 2020. https://www.covid19treatmentguidelines.nih.gov/overview/management/clinical-presentation-of-covid-19/

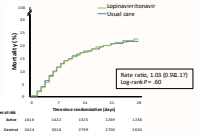
The mild-to-moderate COVID, the majority of them are going to be fine, and during their symptoms are required to self-isolate, stay home, rest in bed, keep hydrated and monitor for worsening symptoms and to decide to go to the hospital if symptoms progress, and a majority of the time this is not needed.

Those who eventually do require hospitalization, either that is because they are dehydrated or they have lack of oxygen (we call hypoxia) and a respiratory and oxygenation requirement. And these are people that may have high-risk factors which have been recognized for severe disease.

Management of ARVs at Home During Illness With COVID-19

- PLWH and COVID-19 should be managed **following the same guidance** as those without HIV[1]
- PLWH should **continue their ARVs** and any opportunistic infection prophylaxis during SARS-CoV-2 infection[1]
- **NOTE:** To maintain access to ARVs, PLWH should **maintain a 30-day–and ideally a 90-day—supply of ARVs** on-hand at all times[1]

Negative Results From RECOVERY Trial[2]



NOTE: No ARV has been shown to be effective to treat or pr COVID-19. In the phase 3 RECOVERY trial, lopinavir-ritonavir did NOT improve outcomes in patients hospitalized with COVI PLWH should not switch their ARV regimens for the purpo protecting against or treating COVID-19

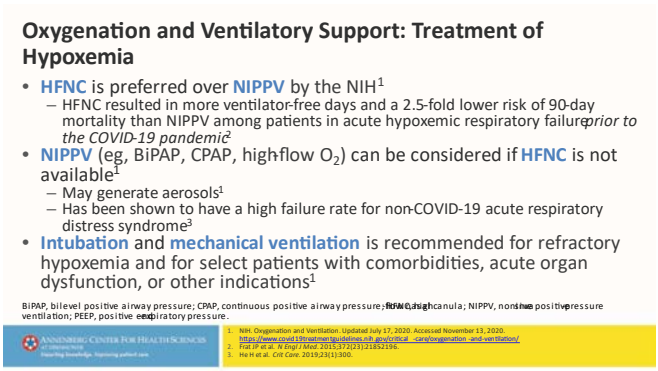
1. HIV.gov. Interim Guidance for COVID-19 and Persons with HIV. Updated June 19, 2020. Accessed November 12, 2020. https://clinicalinfo.hiv.gov/en/guidelines/covid-19-and-persons-hiv/interim-guidance-covid-19-and-persons-hiv
2. RECOVERY Collaborative Group. *Lancet*. 2020;396(10259):1345-1352.

The management of persons living with HIV in the COVID pandemic has particular importance of having prescriptions at-hand of their antiretrovirals. This applies to almost everyone, in general, if they are on medications for their disease management or underlying disease management to have at least a 30-day supply of their medications, as well as even up to 90-day supply.

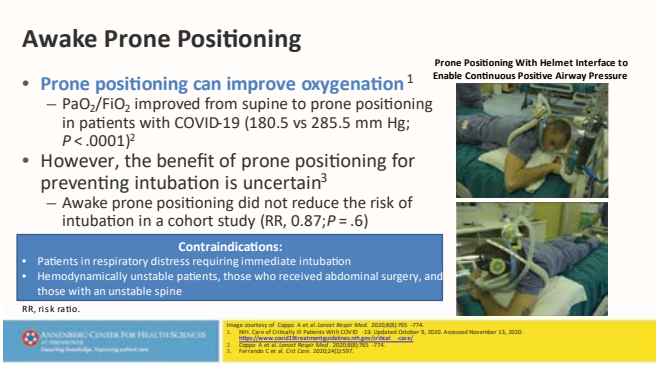
Persons living with HIV, we initially thought would be very much at risk for having COVID, or having severe COVID, or it would be a significant risk factor for COVID disease. As it turns out, persons living with HIV may have had a reason why we don't see that much of a risk associated with being HIV positive for COVID-19. It was initially thought that in people who have been on antiretrovirals, maybe the antiretrovirals have an effect on COVID-19, but that was not the case, as was noted in the RECOVERY trial, where [liponavir-

ritonavir] was used as an antiretroviral to see if it had any effect on COVID-19 disease.

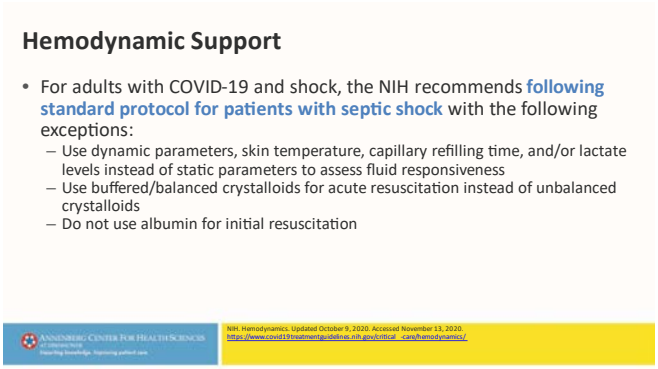
For those types of treatments, such as high-flow nasal oxygen through nasal cannula is a preferred method because the non–high-flow methods such as the BiPAP and CPAP, they do cause aerosolization, and are not a priority. And then ultimately intubation and mechanical ventilation support, unfortunately, is our last resort. We do try to prolong or postpone as much as possible. But sometimes that does happen in seriously sick patients when they progress.



When they are hospitalized, and in mild-to-moderate cases of alert patients, awake, proning is a very strong and powerful strategy because it does help in their oxygenation. Nurses have to be trained on how to tuck in pillows and things to get them comfortable, so their oxygen supply is not squished. Their neck is not strained. They have the call light, and they can be checked frequently while they're proning.



Hemodynamic support, this is a standard procedure. We try to keep patients relatively dry, but of course sometimes they need crystalloids and resuscitations and sometimes even pressors and things to maintain blood pressure. Hemodynamic support is maintained by pulmonary and critical care physicians—primarily it's a team.



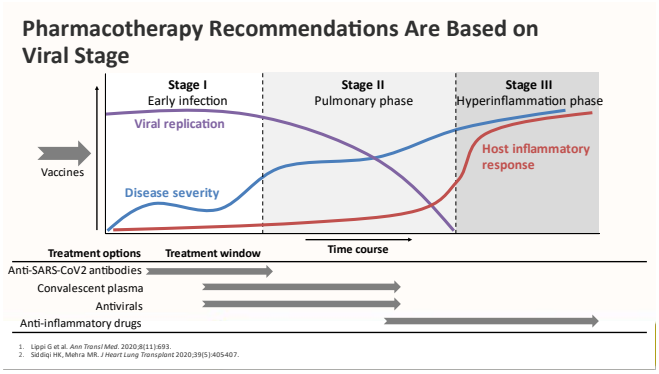
This is one of my favorite slides that I'd like to talk about in terms of interventions that can be done in the hospital setting. And obviously everything starts with time zero. And time zero is this pointer, is the symptom onset, which is very critical, and everything prior to time zero, interventions include vaccines. Also, from the time zero, which is the onset of symptoms, within 10 days is the intervention for the monoclonal antibodies and these can be used within 10 days.

Within the 3 stages of this disease process, which actually from start to finish is about 14 days, and beyond 14 days is the severe and critical inflammatory cytokine storm, which is what occurs in very few individuals that leads to death from COVID.

Early, when there is viral replication, is the timing for antivirals. Now the antiviral remdesivir can be used in the viral replication phase and sort of going over into the stage 2 disease where the viral pneumonia phase is sort of still going on, up to day 9. There is obviously the clinical assessment that you calculate and try to use it up to that point. So in the viral pneumonia phase, patients can be hypoxic but clinically do not

look sick, but that is really the appropriate timing to institute dexamethasone, which, in the RECOVERY trial, has been shown to have a 28-day mortality benefit as well as time to recovery.

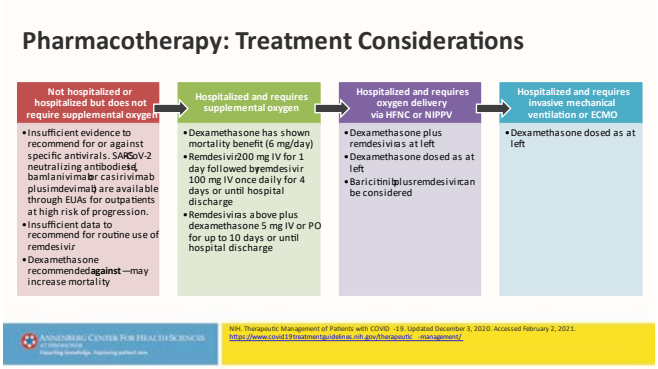
Then finally in the latter phase, there are some anti-inflammatory medications, the latest one, baricitinib, which is a JAK2 inhibitor, has been used in combination with remdesivir.



In terms of treatment consideration, the do's and the don'ts, are very, very important. If a patient does not require hospitalization—and usually that's also because they do not require supplemental oxygen—but if they don't require oxygenation and don't require hospitalization, but are symptomatic, there are 2 interventions, of course, one is the monoclonal antibodies under emergency use authorization.

They have been shown to reduce need for hospitalization. The timing is very important, as in all interventions. The timing has to be within 10 days of symptom onset. The remdesivir has had no significant role for nonhospitalized patients. And, lastly, dexamethasone needs to only be considered if the patient not only is hypoxic, but also hypoxic plus needs supplemental oxygen. In a subset of patients in the RECOVERY trial who got dexamethasone when they were not hypoxic and did not need supplemental oxygen—they actually did worse and had increased mortality.

When we talk about hospitalized patients, I think I've already said, dexamethasone, if they need supplemental oxygen, has been shown with mortality benefit, or viral replication phase and viral pneumonia phase, and remdesivir can be used with dexamethasone. And if these patients actually need high-flow oxygen or what we call noninvasive mechanical ventilation, those are the ones appropriate for baricitinib plus remdesivir together. So the timing for this is also critical because these are subsets of patients that will benefit by not ending up in the ICU or requiring mechanical ventilation.



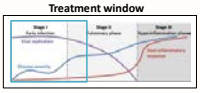
The role of anti SARS-CoV-2 antibodies, the bamlanivimab and the combination monoclonal antibody, casirivimab and imdevimab. What they showed is a significant decrease in the proportion of patients who progressed to hospitalization including emergency room visits and progression to death. Both of these antibodies are currently available under emergency use authorization and they have loaded these to hospitals, and most hospitals are trying to set it up in the outpatient setting.

TEAM UP:
Defining and Refining Optimal HIV Care During the COVID-19 Pandemic

Anti-SARS-CoV-2 Antibodies (Bamlanivimab and Casirivimab/Imdevimab)

Bamlanivimab and casirivimab/imdevimab target the S protein and made available by EUA for nonhospitalized patients at risk for progressing to severe disease[1]

Treatment window



- **BLAZE-1: bamlanivimab**[2]
  - Decreased the proportion of patients who progressed to hospitalization, ED visit, or death (6.3% vs 1.6%)
- **R10933-10987-COV-2067: casirivimab/imdevimab**[3]
  - Decreased the proportion of patients who required medically attended visits related to COVID-19 within 28 days of treatment (6.5% vs 2.8%)

1. NIH. Therapeutic Management of Patients with COVID -19. Updated December 3, 2020. Accessed February 2, 2021. https://www.covid19treatmentguidelines.nih.gov/therapeutic management/
2. Chen P et al. *N Engl J Med*. 2021;384(3):229237.
3. Weinreich DM et al. *N Engl J Med*. 2021;384(3):238251.

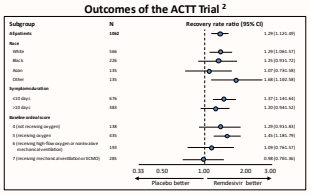
Remdesivir, as we all know, is the only approved antiviral pharmacotherapy for the treatment of COVID-19, and it is only used during hospitalization. We use it in patients who have SpO_2 less than 94% and requiring supplemental oxygen and who are also on mechanical ventilation or ECMO. The dose is 200 mg on day 1. It's the loading dose, followed by 100 mg daily. Just as a standard of care, we use it for 5 days, and in select patients we do make that decision of extending to 10 days. And it has basically been shown to decrease the time to response from (I think) 15 days to 11 days.

Remdesivir and COVID-19

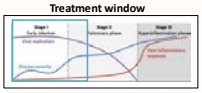
- Remdesivir is the **only approved pharmacotherapy** for the treatment of COVID-19 requiring hospitalization [1]
- Approved for adults and children 12 years or older weighing at least 40 kg [1]
- Can be used in younger children under the EUA[1]
- Recommended for COVID-19 treatment in [3]:
  - Hospitalized patients with SpO_2 ≤94%
  - Patients requiring supplemental O_2
  - Patients who are on mechanical ventilation or ECMO
- Recommending dosing of **200 mg on day 1 followed by 100 mg once-daily for 4 days** (can be extended to 10 days) [3]

EUA, emergency use authorization.

Outcomes of the ACTT Trial [2]



Treatment window



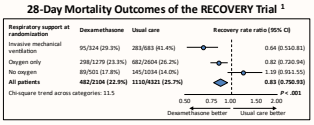
1. FDA Approves First Treatment for COVID -19. Updated October 22, 2020. Accessed November 13, 2020. https://www.fda.gov/news events/fda-approves-first-treatment-covid-19
2. Beigel JH et al. *N Engl J Med*. 2020;383:1813 -1826.
3. NIH. Therapeutic Management of Patients with COVID -19. Updated October 9, 2020. Accessed November 13, 2020. https://www.covid19treatmentguidelines.nih.gov/therapeutic management/

In the RECOVERY trial, dexamethasone was the first kind of promising thing that showed a mortality benefit at 28 days. And that is now become a standard of care for patients who are hospitalized and have hypoxia requiring supplemental oxygen. The recommended dose is 6 mg daily, either given intravenously or orally.

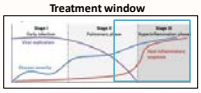
Dexamethasone and COVID-19

- In preliminary results from a randomized open-label trial, **dexamethasone reduced the risk for mortality**[1]
- Recommended for COVID-19 treatment in[2]:
  - Patients with COVID-19 who are mechanically ventilated
  - Patients with COVID-19 who require supplemental O_2 but not mechanically ventilated
- Recommended dosing of **6 mg/day for 10 days**[2]

28-Day Mortality Outcomes of the RECOVERY Trial [1]



Treatment window



1. RECOVERY Collaborative Group et al. *N Engl J Med*. 2020;NEJMoa2021436.
2. NIH. Therapeutic Management of Patients with COVID -19. Updated October 9, 2020. Accessed November 13, 2020. https://www.covid19treatmentguidelines.nih.gov/therapeutic management/

The convalescent plasma—the only study that has been peer reviewed—was a randomized control trial of 103 patients. And the 28-day rate of clinical improvement was 51.9% in those treated with convalescent plasma compared to 43.1% of controls. However, the convalescent plasma also needs to be used in the right window within a certain time before severe disease progression occurs.

Convalescent Plasma

Treatment window

- In a randomized controlled trial (N = 103), the 28-day rate of clinical improvement was 51.9% in those treated with convalescent plasma compared with 43.1% of controls (HR, 1.40; $P = .26$)
  - However, clinical improvement was significant in patients with severe disease ($P = .03$)
- Thousands of patients with COVID-19 have been treated with convalescent plasma in prospective and retrospective studies, which suggest that **the treatment is safe**
- According to the NIH, there is **insufficient evidence** to recommend for or against convalescent plasma for the treatment of COVID-19

1. Li L et al. *JAMA*. 2020;324(5):460470.
2. NIH. Convalescent plasma. Updated October 9, 2020. Accessed November 13, 2020. https://www.covid19treatmentguidelines.nih.gov/immune based-therapy/blood -derived products/convalescent-plasma/

Baricitinib plus remdesivir. This particular study, where a randomized control trial using this JAK2 inhibitor plus remdesivir. What it showed when compared to remdesivir alone is that it reduced the recovery time, accelerated improvement and also had mortality benefit. And so we immediately employed use of baricitinib, which is an oral medicine, 4 mg tablet once a day to be used along with remdesivir, and it can be used for up to 14 days.

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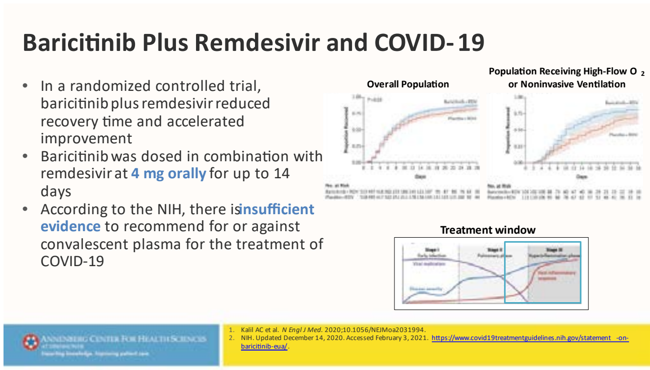
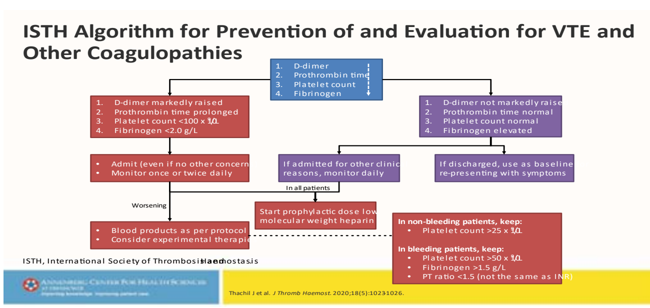
DAP Health

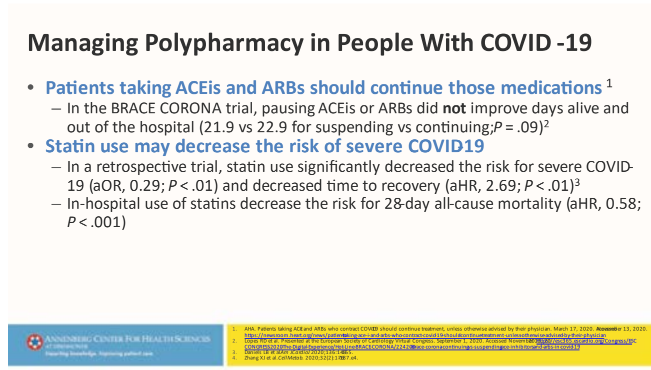


The other aspects of managing COVID-19 have many other challenges such as coagulopathies, prevention of VTEs, and the algorithm that has been developed, are based on at baseline, and a repeated evaluation for D-Dimer, prothrombin time, platelet counts, and fibrinogen levels. This algorithm has been developed by the International Society of Thrombosis and Haemostasis.



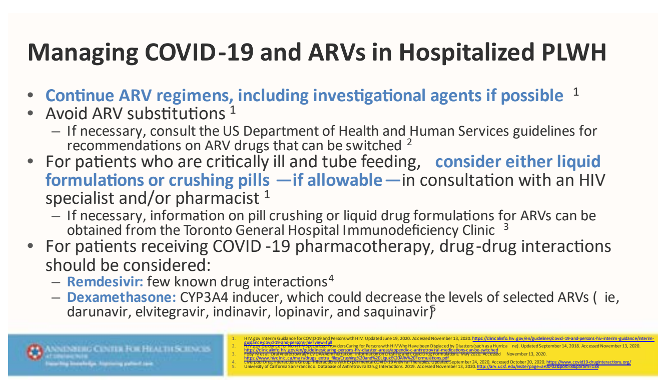
What should we do about patients taking the ACEis and ARBs? Should they be continued or should they be stopped? And what was confirmed in the BRACE CORONA trial was that doing anything to manipulate or stopping ACEis or ARBs did not improve days that mattered where a patient was alive and out of the hospital.

Statin use has been thought to decrease the risk of severe COVID 19. So, most people have advised to not to stop statins when patients are admitted, if they have been taking statins.



In persons living with HIV, antiretroviral regimens, we will continue all of the antiretroviral regimens, as long as the patient is able to take them orally by themselves. If they are in the ICU and intubated, we will even continue those through Dobhoff or NG tubes and try to maintain nutrition, but also continuity of the oral medicines.

We have, from time to time, even converted some of the antiretrovirals that are available in liquid formulation, or are able to be crushed, to be given. Remdesivir has not had any drug-drug interactions of any significance, and other medications that patients often are on, such as protease inhibitors, which do have drug-drug interactions with other medicines (especially dexamethasone), we do monitor these closely without having to discontinue, unless it's absolutely necessary.

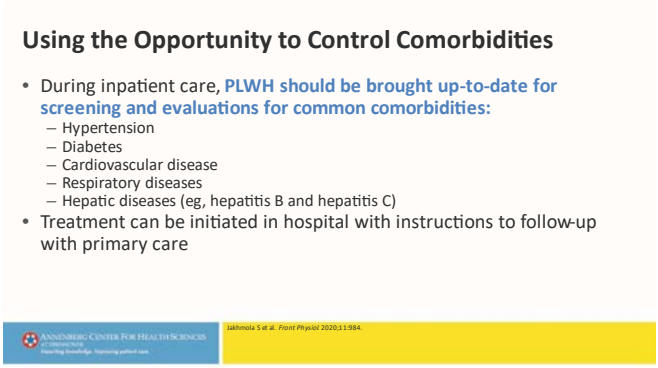


As far as newer treatment clinical trials are concerned, persons living with HIV should not be excluded from

clinical trials just based on the HIV status. And the same thing is true for pregnancy, women, race, ethnicity, any situations, I think it makes sense to try to not exclude just on those bases. HIV definitely is not an exclusion.

During inpatient care, persons living with HIV should be brought up to date for screening and evaluation for common comorbidities.

The HIV itself—of being HIV positive and on medicines—the HIV alone has not been the main risk factor, but a person with HIV who has hypertension, diabetes, obesity, or cardiovascular and respiratory disease, is at equal risk of having COVID along with the HIV.



Let me talk about the persons living with HIV who have COVID-19. They have to be managed the same way as any other population. Antiretrovirals should be continued, no doubt about that. All efforts are made to avoid switching regimens.

Hypercoagulability is particularly relevant in persons living with HIV due to a high significant instance of hypertension, cardiovascular disease and just, in general, inflammatory disease is common. And so we definitely have a parallel pandemic in some parts like here, where we have a significant population that are living here with HIV that are frightened and do have comorbidities that put them at risk for COVID-19.

MENTAL HEALTH

What is a long-term survivor, and what are the mental health needs of this population?

Jill Gover, PhD: Right, a big question. Well, first of all, I'd like to start off by defining long-term survival, because there are 3 different categories. The main category is those who were diagnosed pre-HAART. They are the longest-term survivors who acquired HIV in the 1980s, before there was antiretroviral therapy, and at that time it was like getting a death sentence, and the psychosocial issues are very different for this cohort than those who were diagnosed post-HAART, and that's the second category. Those who were diagnosed or tested after 1996, they may be living with HIV for close to 20 years or over 20 years. So they're certainly long-term survivors, but they had a very different experience when they first were diagnosed, vs those who thought they were going to die.

Then we have a third category of long-term survivors, which is often missed, and those are the people who were HIV-negative, but were caring for loved ones, caregivers, partners, people who were traumatized by the magnitude of the losses that were occurring in the 1980s and '90s before HAART. They are also long-term survivors because they carry some of the residual psychological scars of that traumatic loss during that time period.

When we look at the needs, there are very specific mental health needs that long-term survivors need to address, and it's the effects of sustained trauma. And when we look at long-term trauma, we're looking at depression, anxiety, there's an emotional numbness that occurs, that's a PTSD symptom, a lot of anger, and survivor's guilt. "How is it that I survived, when so many did not?" There's often somatic consequences of trauma, such as insomnia. There's hypervigilance, and we often see an increase or a correlation with substance abuse and low self-esteem, and a tendency

to want to isolate and socially withdraw, which of course has been exacerbated right now with COVID. And what we're seeing across the board with COVID is the increased anxiety, the anticipatory dread, the fear of getting sick, and then all that depression, and grief, and loss—there are so many tangible losses, as well as just the loss of our routine and what's familiar to us, and life as we've known it.

How do generational differences influence the way that people living with HIV experience COVID-19?

Jill Gover, PhD: I think there's some distinctive differences right now. Long-term survivors who are older adults tend to be more careful, more likely to isolate and self-quarantine because they know that they are vulnerable, and they are long-term survivors because they survived the last pandemic by being diligent about their health, and so they take it very seriously. And because long-term survivors who are also older adults know they are more vulnerable to COVID because they share comorbidities with other older adults, they know that they're more likely to die from it, and so they're very careful, and that's a little bit different from those who are younger.

How might the anxiety and stress of COVID-19 uniquely impact people living with HIV?

Jill Gover, PhD: Well, I think that we already have a tendency towards post-traumatic stress symptoms, and so there is an increase in those PTSD symptoms from past trauma. The COVID is triggering a lot of very painful memories for long-term survivors, and in addition to that, there is an increase in adjustment disorders, because an adjustment disorder is when you're reacting to stressors, and certainly today we all are facing multiple stressors, and this is just exacerbated for long-term survivors. So there are many, many more adjustment disorders with mixed anxiety and depressed mood that are showing up in our clinic as a response to COVID, unique to long-term survivors. And the last is that long-term survivors are already at increased risk for substance abuse as a coping mechanism, and that has just been further increased with COVID, because of the isolation.

What interventions are needed to combat these symptoms during COVID-19?

Jill Gover, PhD: Well, I think one of the very first things is that we have to reduce isolation, because isolation leads to depression. It's very important to identify the faulty thinking that can exacerbate anxiety. This is a thinking style we call catastrophizing, where we have the tendency to jump to the very, very worst-case scenario, and we go there first and then, of course, we worry unnecessarily, so it's very important to identify that faulty thinking and counter it.

We need to improve communication skills to ease the stress on intimate relationships, because people who are staying holed up with each other 24/7 can develop interpersonal conflicts, and we need to really work on communication skills. We need to learn problem-solving skills and strategies to reduce the stress, and that really needs to be emphasized during this time period.

Most important is we need to process the grief and trauma that's associated with COVID-19 and is triggering some very painful past memories.

What evidence-based strategies can providers use or recommend to address the mental health needs of people living with HIV during COVID-19?

Jill Gover, PhD: There are many really excellent therapeutic approaches that are evidence-based. There's trauma-informed therapy, manualized treatment programs, such as Seeking Safety, that have been proven by research to be very effective. There's MBSR, which stands for mindfulness-based stress reduction, which is also very, very helpful for bringing down some of that anxiety that is so pervasive right now. Cognitive behavioral therapy has lots and lots of research substantiating it as evidence-based and very

effective in changing people's thinking, which then affects how they feel. And then there's EMDR, which stands for eye movement desensitization and reprocessing, and that's a very effective technique for addressing some of the traumatic symptoms, the PTSD. And there is a lot of very effective pain management treatment, which is very important for long-term survivors, because as they're aging with HIV, they're aging with comorbidities, and some of that is connected to chronic pain.

In addition, there are peer support services that are very helpful. There are chapters all over the country of LKA, which stands for Let's Kick ASS, and that's AIDS Survivor Syndrome, which is an acronym that's been developed in the community to refer to PTSD symptoms without pathologizing the disorder, and LKA provides social support and helps long-term survivors break out of the isolation, and that's so, so therapeutic—so important—and all of those social events that connect those living with HIV and allow them to have fun, is very, very important and very healing.

How can people living with HIV "cultivate connections" while maintaining physical distancing?

Jill Gover, PhD: Well, I think first of all, it's very important to recognize that physical proximity is not synonymous with connection. It's really important to remember that just because we're physically distancing right now, does not mean that we socially isolate or that we have to socially isolate. We can be physically apart and still experience social connection and intimacy, and through the use of technology, there's Zoom, and FaceTime, and phone chats. There's so many ways in which we can cultivate connection and stay involved in other people's lives, and them in ours, right?

Long-term survivors need to cultivate connection intentionally. It's not going to happen spontaneously the way it might have pre-COVID, but we can reach out to others through virtual participation and shared activities. There are lots of groups now available on Zoom, we can have one-to-one visits with our friends. It's so important to make that effort to stay connected and have regular dates. I'm really encouraging people to make dates with their friends on Zoom and play games, or book chats, or anything that they like to do that's a shared activity that can translate into Zoom, is a great way to cultivate connection.

Can you talk a little bit about resilience? What is it, and how can providers strengthen it?

Jill Gover, PhD: Well, I'll start with the definition. Resilience embodies the personal qualities that enable one to thrive in the face of adversity, and it describes a process whereby people bounce back from adversity and go on with their lives, and this is something we all are able to do. It's not easy, but it's what our goal needs to be. And in order for providers to strengthen resiliency in patients, we need to help them build social networks that will reduce the isolation. It's extremely important that we address the isolation because that is psychologically very deleterious for health.

It's also very important to process traumatic loss. As long as it's unresolved, it will create a PTSD host of symptoms. And so, processing traumatic loss allows us to build resilience. It's very important to reduce HIV-related stigma and to process through any shame that's associated with that, and it's necessary to mitigate the detrimental health effects of the virus and the medications that have been taken long term by making healthy lifestyle choices, because that's how we age well, no matter whether we're living with HIV or not. We need to make healthy lifestyle choices and follow the research of the Blue Zone, where they identified all of these wonderful lifestyle variables that lead to healthy aging.

What are some of those lifestyle variables?

Jill Gover, PhD: Very important to eat well, eat nutritious food, plant-based food, and to exercise. That makes a huge difference. It's important to have a

sense of purpose, to have what I call a raison d'être, to get up in the morning, where you feel like you're doing something that's meaningful. It's very important to cultivate connection, because that's also what brings meaning to our lives, and it's important to pursue our passions.

Access to Care and Continuum of Care

What are examples of creative ways that your organization has ensured patients have access to HIV and STI testing, during this pandemic?

CJ Tobe: We knew at the onset of the COVID-19 pandemic that we were going to have to innovate our testing programs for HIV and STIs. We internally saw that there was an increase in new HIV infections and then also an increase in STI infections. So really the first thing that we decided to do was start launching self-testing for HIV. This allowed people to be able to request a self-test for HIV and be able to complete that test, then in the confines of their own home, in their car or wherever they wanted to test their self.

Our brand marketing department did a wonderful job making sure that everybody in the community was aware of this new program. So you could be driving down the freeway and see a billboard with the phone number to call to request the tests. You could be waiting at the bus stop to get on the bus and see, "Oh, well, there's a free self-test ad," that people could take their phone and utilize the QR code and input their information to request a test be mailed to them.

We advertised pickup for tests so people could come on site to a drive-through and just pick up a self-test if they needed to. And a lot of the questions people want to know is, okay, well, how does that test even get to the patient, and then what happens after that? Because everybody is so used to the old way of doing things, which is, you're going to test somebody right in front of you. It's going to be a test counselor, and then it's going to be your client.

Anytime we got any kind of request that was centralized here at DAP Health, we developed a workflow and a process to where we would then reach out to that client via phone, via email. We would confirm that the address they gave to us is correct. And we would ask them questions to really see if they were ready to test themselves for HIV. So once we got that information, we did some screening. We mailed that test through FedEx. They would receive it, and we would give them a call in roughly 5-7 days.

Then, what would happen after that is, we would want to know what the results were. There are some people where we've not been able to get a hold of, or they do not get ahold of us. That's something that we realized at the very beginning, and also talking to other colleagues of mine, it's something that we just have to be okay with because that person knows what their HIV status is, and we need to be okay with that. The right person knows.

Included into that self-test though, obviously, are instructions through OraQuick, it's 20 minutes about how to properly do the oral swab for HIV. But most importantly, that pack for self-testing contains broader information about community resources and education around sexual wellness, HIV, and STIs—and also contains a whole bunch of contact information, about PrEP for example. Who to contact, you're going to contact our PrEP program. We're going to get you enrolled into our PrEP program, cover your medication, cover your office visits and get you in.

If you are HIV-positive, you were supplied links to care information on who to contact to get connected here to DAP Health care. And the most important thing that I really think part of this program is, is if people are self-testing, that means they can self-test at 2 o'clock

in the morning, by their self. They can be drunk. They could be using meth. They could be in Alaska or Hawaii or away from everybody. But we made sure that we had a cell phone with one of our key health workers that had been with our department for over 25 years for access 24/7, to where somebody tests positive for HIV at 2 o'clock in the morning, that they would not be alone and that they would have a support system with one click of the phone to be able to be connected to us.

That was one of the biggest things that we did around HIV testing—it was self-testing. But our outreach testing had to change as well. We're used to doing community testing on a mobile unit, an enclosed area, 20-30 minutes with that client, or a fixed location at a community partner site. In the old days, I would say last year, pre-COVID, we would test at one location for 6 hours. With this self-test, it allowed us to provide options to people who wanted to seek HIV testing. So if we were out in the community and somebody is with a group of friends and all 5 people want to test, that's 2-plus hours, but that group of friends would have to wait for everybody to get an HIV test.

Now, with the self-test, we can collect the needed information and we can give them the test right then and there at that event in the community. Or if you don't want to take it with you, because you're going to go to the mall, you're going to go to the park. You're going to go grab lunch, or maybe you're traveling back to your hometown, maybe you're traveling back to LA, we'll mail you one. So just give us your mailing information and we'll mail you a test, and we'll follow the process that I just described before.

We're able to hit, now, 4 or 5 different locations in one day and only do about 2 hours of outreach for testing that we can distribute those self-tests. So for HIV testing, we have innovated a lot and it's really just providing options for people to access whatever way of testing that fits their needs at that time.

If we flip gears over to what we've done for innovation to STI testing inside of our sexual wellness clinic—also known as the DOCK here at DAP Health—during the onset of the pandemic we noticed that STIs were increasing for positives. However, the testing numbers were slightly decreasing because people were not coming into the clinic to get tested. So we took the mobile units and we put it in the DAP Health parking lot, and we began to advertise fast-track sexual wellness services out of the mobile units. So we essentially took our fast-track services that were embedded into our sexual wellness clinic and moved them to the mobile units, and implemented those fast-track services.

For whatever reason, it caught on, and people were utilizing the mobile unit to get routinely tested for STIs. So that was another option that we did to provide for STIs. And a lot of this all happened, really—with HIV testing and STI testing—with just marketing through different outlets, whether it's Grindr … it can be Tinder … it can be DAP Health's social media pages … it could be billboards … it could be bus stops. So just getting the word out there to let people know, "Hey, we have different ways that you can access HIV and STI testing."

Has there been any interest in combining HIV and STI testing with COVID testing, such as at the same place, or at the same time?

CJ Tobe: Internally we've had those conversations, but I do know that there are some clinics that are integrating HIV testing, STI testing, and COVID testing. I can say internally what we're doing here at DAP Health is everybody that comes through our COVID-19 triage clinic for COVID testing, the lists of those patients are then sent to our linkage-to-care team. And then we follow up with every single one of those patients for the sole purpose of insurance enrollments, primary care assistance, HIV testing, community resources. So we follow up with everybody that's coming to work with the COVID-19

triage clinic, for any of those additional support systems, medical and social support as needed.

What clinical and nonclinical support services can clinicians and healthcare centers provide to their patients for improving access to care?

CJ Tobe: The first thing I think everybody tried to do in this country was to say, "Well, we need to go virtual with everything." And so healthcare was obviously on the top priority list of making sure your primary care visits, your HIV visits, everything was going to be through the telephone or through the computer. So DAP Health was no different. We switched over to virtual health for all of our medical appointments, including behavioral health. We also launched teledentistry over the summer as well. And I know that teledentistry is also something that a lot of other dental offices have done.

The biggest thing, though, is after those patients complete those medical visits, are they then going to come onsite and get those labs services done? It seems counterintuitive to say, "Well, we're going to complete your medical visit virtually, but what about all these lab services that are so crucial for the care team and the clinician to be able to help support that patient?"

We did internal dialogue and planning and discussions, and we do have an onsite LabCorp and the availability and option is there to move things out to our parking lot and provide lab services out in the parking lot, if that fits the needs of some of the patients. But what the 2 biggest things that have been successful is, one, our own mobile unit, but also leveraging our relationships with insurance companies like IEHP and Desert Oasis Healthcare, who provide mobile lab services for their patients. So during that virtual visit, the clinical team and the nurses will assess that patient and say, "Okay, thank you for completing the virtual visit. We're going to submit all of your lab work. It's going to be expensive. Are you wanting to come here onsite and get your labs done? Or would you like us to put a referral with your insurance company that have lab services brought to you, so you don't have to leave your home?"
Again, it's about providing options that best fit the needs of that patient. So on the clinical side, there're several big things that I think we've done about telehealth, virtual health, and just ensuring that lab services are getting done, either in the confines of the patient's home or through a mobile unit.

Nonclinical is just as important, because people are going to need food. People are going to need hygiene kits. People are getting medications, right? All those sorts of things. So right away at DAP Health—we have a community health department—we launched at the end of March an at-home DAP Total Care Package, which would deliver about $40 to $50 worth of food to any of our patients living with HIV, and any of our patients coming through our COVID-19 triage clinic to be tested for COVID.

Then, halfway through, I would say, about May, June, we then decided, well, food is one, but what about laundry detergent and what about toilet paper? So we also tacked on an essential item list as well. So now for the last 9 months or so we've been delivering food and also essential items, and on a case-by-case basis, medication, to patients' homes.

How is your organization increasing patient confidence in their safety and their ability to get care without risking infection with COVID?

CJ Tobe: Education, obviously, is key to anything, especially during a pandemic like COVID-19. So we were able to get our clinicians to do really quick videos, whether it was hand washing, or whether it was the precautions that we're taking here as an organization within our clinics. Just letting everybody know, in the community, this is what we're doing at DAP Health, so you feel comfortable coming to our clinics, knowing that we're going to limit the exposure to COVID-19 the best that we can.

We went through, and we started going through, different videos and explaining what that process would look like. We ended up limiting our entries to both of our buildings, to one entry per building. And when somebody walks in, whether it's a staff member or a patient, they're going to enter the same door, they're going to be greeted with a smile, even though they're going to be wearing a mask, by one of our amazing volunteers, and we're going to ask them standard questions about, "Where have you been traveling? How are you feeling today? Do you have a temperature?"

Then, if they pass those 3 questions, they move on to do a Thermoscan where they'll look into a machine and it will then take that person's temperature. And it will either ding and say, "Hey, you're good to go," or, "You're not." And then that person would need to leave and be referred to our COVID-19 triage clinic. They would then be given a sticker that they'd been screened for the day, and then they would go about their appointments, to their medication pickups, to their lab work.

Everywhere in the organization we made sure that our onsite platform and also our pharmacy, and then our clinics, all the seating is 6 ft away. It is very, very compliant. And we just wanted to make sure that we created a safe environment for people to access our medical services here on site.

How can clinicians and organizations promote diagnosis and then continuous comprehensive health care for people living with HIV?

CJ Tobe: I think the biggest thing that we learned through the pandemic was, we had people living with HIV or non-HIV who were losing their jobs, which means essentially they would then be losing their benefits and health insurance. And so this was the first time that many people had to go out and navigate through the complex systems that we've all created to obtaining health insurance again. And so we realized and witnessed that there were people that had been living with HIV for 15, 20 years, that had been working and employed and never really had to navigate the system on their own.
Internally, here at DAP, we made sure that we paid it forward and gave back to the community that's been serving us for 35-plus years, and created the One Call program. It was a program that we marketed and let out to the entire community, whether you are a GP patient, whether you're HIV-positive or not, to call this number to speak to us and we would then have a 3-way call with a Covered California insurance agent. We have a whole list of them available that are partnering with us. And we would then be able to 3-way call that insurance agent and enroll these people in our community, into health insurance.

If they were HIV-positive and they were very worried about, "My income got reduced and now I don't have the private insurance through my employer, but I'm eligible for Covered California, but I can't pay $400 out of pocket every month for the health insurance premiums," we made sure to work with the insurance agents, to educate them while they educate us. And while we help the patient to say, "We've got programs to help support your out-of-pocket costs for health insurance payments to the state," which is known as OA-HIPP. So if you're ADAP eligible, you're going to be OA-HIPP eligible. And so, we've really leveraged our relationships with the insurance agents in our region to really be able to provide the service and connect community members to insurance and also to healthcare.

What are important considerations for helping patients reenter HIV care, whether the lapse in care is from COVID or another reason?

CJ Tobe: There's a lot of lapses of care that are currently going on through COVID and even before COVID. And I think the important thing is that we develop an internal process as an organization about when someone starts "no-showing" for appointments, that it doesn't take a week or 2 for us to reach out to them to say, "Hey, you missed your appointment 1 or

2 weeks ago, what's going on?" No, we're going to call you that same day or the next day, and we're going to say, "Hey, John Doe, we noticed you missed your appointment. What's currently happening in your life right now?"

And based on that patient, if they're HIV-positive, non-HIV, they may be already connected to a case manager. They may be connected to a linkage-to-care specialist, or maybe it's our central registration team that's making that follow-up phone call about a missed appointment. But what we do is we do an acuity. We do a client assessment about what's going on. They may say, "Well, my mom just passed away." Or they may say, "Well, for the last week I've been living under a bridge."

We know here at DAP Health with the AIDS crisis, that if people don't have food in their stomach and a roof over their head, they're not going to prioritize their healthcare. And so it's our responsibility to do a lot more listening and less talking and learn what's going on with that patient's life, and why they're not showing up.

Outreach: High Risk, Underserved, Local Communities

In what ways has COVID been uniquely challenging for people in medically underserved communities?

CJ Tobe: We knew through the AIDS crisis that the Black and Brown communities, and then also people living in poverty, have been disproportionately impacted by the HIV virus. We've also seen that happen with the COVID-19 pandemic as well. The same people are being impacted. Multiple reasons for that. Many public health organizations across the country are now finally identifying systemic racism as a public health crisis, which is crucial to addressing any kind of problems that are happening across this nation for the Black community.

Also, this is the second pandemic for a lot of people, right now, that are living with HIV. And it's something that we've experienced through our older patient population that's living with HIV, that may be going through PTSD with the second pandemic of COVID.

Social isolation. Everybody is going through different waves of emotion and behavior right now through this pandemic, and everybody's reacting differently. I've seen colleagues, I've seen people in the community, I see patients, family, myself. This COVID-19 pandemic has really exacerbated the way a lot of us are feeling, the way we're communicating and the way we're acting. But what is significantly important is there are people that have had these feelings and this lack of access their entire life, and it's been going on for decades. And so this COVID-19 pandemic is really shining a light on the inequalities that we currently have in this country, in our healthcare system, and that we really need to start making productive steps in improving those.

How can clinicians identify local communities that may be at high risk for HIV during COVID?

CJ Tobe: I think the first thing to do is, data drives decision-making. At least it does here at DAP Health. And I know it does in other communities across the nation. So we can look at state surveillance reporting. We can look at county surveillance reporting. Internally here at DAP, we have Power BI, which tracks in live time all STI and HIV data. We also have GIS heat mapping that's going to show where the new HIV cases and new STI cases are coming. So that way, we're able to identify where the positives are coming from, their social network, and then be able to allocate all of our outreach efforts to prioritize those locations.

We even have the systems to where we can go through and we can really go down to the social determinants of health. So, for example, let's say we have 500 new HIV cases in 1 year, we'll be able to tune

in all the way down and say, okay, well, 75% of those 500 people that were newly diagnosed for HIV were homeless. And so we know that our outreach efforts need to go to our homeless neighbors and help support them.

Data is really the driving factor, and making sure that we get the information out there about HIV and COVID-19 to identify those people that are most impacted by these viruses. And then the way we go about doing that obviously is with the data, but we can also do that through marketing. And I can tell you that with our brand marketing department, we went through and we knew that members of the Black and Brown community, and people living in poverty, were being drastically impacted by COVID-19 like they had been for HIV. So we did geo-fencing, where if somebody is on their phone or on their computer, it would pop up on an app and it would say, okay, get healthcare here, get tested here. Here's COVID education.

We also were able to identify residents that were living in the Black and Brown communities, and people living under the 200% FPL, and we were able to send half-pages through the mail. So maybe people don't use phones, and people still use the mail. I personally never check my mail. I'm horrible with that. But we know that that's sometimes the only way to really reach people that aren't using their phone, and so we did that. We sent out to over 5,000 people that are living in poverty, or in the Black and Brown communities, to let them know about COVID. Wash your hands. This is where you go get tested. HIV. This is how you get a self-HIV test. And so we were able to really reach communities that really have been impacted by these 2 viruses.

What are the other ways that clinicians improve prevention and screening efforts in underserved communities during COVID-19?

CJ Tobe: Well, I think just visibly being out there, virtually. Doing weekly virtual presentations about, "This is how you can limit your exposure to COVID-19. If you're having sex, these are the precautions you can take to lower your risk. If you want to go to that family dinner, this is what you should be doing. Maybe you can go get tested first." I think just clinicians, because they're the experts, right, they are the ones who are really driving that ship about making sure that everybody gets the appropriate, accurate information about COVID-19. And so they are the ones that really, really should be giving those virtual presentations about COVID-19.

What are examples of creative ways that your FQHC has formed partnerships to improve prevention, screening and treatment?

CJ Tobe: I can tell you this has probably been the most exciting thing through COVID, was that our partnerships have strengthened and grown because we're better together. And without the partnerships around the community, there's no way any of us can do what we do, in reaching the community members who really need us. So a couple of the ones that we've done: there is a monthly food distribution by Fine Food at the James O. Jessie Unity Center in North Palm Springs, specifically in the African American community here. We used to partner with them just to provide HIV testing and other mobile units. Well, they ended up going to a drive-through pickup for food.

We did a survey, we wanted to find out what the needs were. We wanted to listen to the community first. We then started stuffing the food bags with QR codes to where people could request self-tests. We also started putting in COVID education to where people could call a number or see a visual about what they could do to limit COVID-19 exposure, and where they could also get tested for COVID. So that was one of our partnerships that we still do monthly, as really, it's been as a response to the COVID-19 pandemic in augmenting the way that we've really been able to get that information out.

Partnerships with the hospitals here in the area, and the urgent cares, and the Planned Parenthoods, have just grown. Our linkage-to-care team, for example, for anybody that may be newly diagnosed for HIV at say, Desert Regional Medical Center or Eisenhower, for example, and they want to connect them to DAP Health for care, they will immediately call our linkage-to-care team. And they'll even arrange to where we can FaceTime with the patients. Because in the past that team would go to the hospital, and now because of COVID-19, we're going to make sure that we're protecting the patients and the staff. And so, the nursing teams at these hospitals have been remarkable.

Planned Parenthood, for example, they will call us if they get an HIV-positive result for a client and they will tell us, "Hey, John Doe's coming in tomorrow at 10 o'clock in the morning to receive this new HIV diagnosis. Would somebody from your team like to come here or attend virtually while we deliver that news?" And we can then connect them to care. And it's a warm handoff that's really been beneficial for our new HIV clients.

Then the last one I really want to mention as far as partnerships, which would be, we partnered with over 20 businesses in our region to put outreach tables. We knew that physical outreach is probably not going to happen as much through COVID-19, but we knew more than ever that healthcare services around HIV, sexual wellness, and COVID really needed to get out there.

Thank you to the 20-plus partnering businesses, we were able to put outreach tables there with education materials about sexual wellness in COVID, but most importantly, QR codes. And I will keep saying QR codes, because it's been a wonderful thing to where somebody can walk up where they're grabbing their food, or maybe they're in a homeless shelter, or they're grabbing their coffee at Starbucks, or they're going to Cardenas to get lemons for their water, and they're able to just take their phone and use the QR code and pull up multiple things. One, community resources. I need food, where are the shelters in the Coachella Valley that I can go get food? Two, I want services. What kind of services do you want? You pull it up on your phone. You enter your contact information and you check sexual wellness. You want HIV testing. You want mental health, you need assistance with insurance, you want housing. You check whatever boxes, services you want, and then we call that person and we say, "Hi, we know that you recently used a QR code at one of our outreach tables and you checked you want tested for HIV. Here's your options on how we can make sure that you get tested for HIV."

What are best practices for providing culturally competent healthcare to people living with HIV?

CJ Tobe: I think the most important thing is that you hire culturally representative staff that's going to fit the population that you're serving. So if you're serving the LGBTQ family, then you want to probably hire someone that fits that. Also, I would say that here at DAP Health, 75% of our patients are actually living below the 200% [FPL]. So we have a lot of patients that may be homeless, for example. They may be lower income. They may have substance use. So hiring staff that have gone through that journey, that they know the struggle of being homeless and what it takes to survive, they've gone through their journey of mental health and now they're at a point to where they can work and be of service to others. So being able to hire people with those lived experiences to then turn around and provide services to the community is significantly beneficial.

The Promotora Model is something that is nationally known, and something that I strongly believe in, that we're doing here at DAP Health. And then also a WPATH certification for our trans brothers and sisters as well, making steps as an organization to become WPATH certified, because our trans brothers and sisters are disproportionately affected by HIV as well. And so being able to hire people that fit the

community you serve, and then also put all staff through training to better serve the needs of the community.

What risk mitigation strategies should clinicians discuss with people living with HIV who have sex during COVID-19?

CJ Tobe: I would say the first thing would be is that we can't judge anybody. We know that we have stay-at-home orders. We know that we're supposed to socially distance, but the first thing is that we have to realize that if we're not having sex, that's one thing, but it doesn't necessarily mean that other people aren't. And so then we have to start questioning and listening to them about, well, why would they be having sex right now?

Well, there's a lot of different reasons. One, some people are living through their second pandemic and their way of coping with isolation is to have sex. Sex can be used for stress relief, for example. It can be sex addiction. People are losing employment and income, so it could be sex for survival. So I think really understanding that there are different reasons why people have sex, we'll do a much better job in being able to assist them with harm-reduction strategies, for example. Instead of an all or nothing, an abstinence or all-out, it can be what fits best for you.

DAP Health partnered at the beginning of this pandemic with Trenton Ducati Studios, a porn performer and producer, to really get the message out to people saying, yes, the best thing right now is to stay home and do everything you need to with yourself. However, if you are not able to do that because of your life circumstances right now, these are all the different ways that you can engage in sex but also limit your exposure to COVID-19. And so there was a whole big digital campaign about that. And it went from anywhere from just doing everything virtual, to limiting sexual partners, to open relationships now being closed, to doing things outdoors, which has really been popular here in Palm Springs. Hiking trails and pools have become a really big thing here in Palm Springs.

Anything that you can do sexually, but to reduce your exposure to COVID-19, is this conversation that clinicians and community health educators or case managers can have with their clients. And a lot of times the best thing about communicating this information and discussing these harm reduction strategies is, who on the care team has the best relationship with that patient? It's not always the doctor. It's not always the nurse; it's not always the case manager. But who on that care team has that relationship with that client to have that open conversation? And do some listening, and walking through with them about all these different harm-reduction strategies out there for people that are living with HIV that are still engaging in sex.