*(PLEASE NOTE: Transcribed automatically by Vimeo, mistakes are possible/likely. Our apologies.)*

**TRANSCRIPT - GR 01 14 22** "Equity and the Allocation of Scarce Medical Resources During the COVID-19 Pandemic" ***Douglas White*, *MD* from University of Pittsburgh**

**Izzy Budnick**

00:16:29Alright, everyone I’m going to get started with the intro and then hand it over to Dr White to grand rounds today.

00:16:35So, today I have the opportunity to introduce Dr Douglas white from the Department of critical care medicine at the University of Pittsburgh medical Center.

00:16:42Dr White is an intensive it's, with a focus on end of life care in the icu circuit decision making and scarce resource allocation.

00:16:49After completing his undergraduate studies to Dartmouth college Dr white moved West complete Medical School internal medicine residency pulmonary critical care medicine fellowship.

00:16:57A master's degree in epidemiology and biostatistics in a fellowship in clinical ethics at ucsf.

00:17:03After several years and a faculty position at ucsf Dr jack Dr White joined the Faculty at up MC and it since risen to the rank of person Professor within the Department of critical care medicine.

00:17:13Dr White isn't an attending physician and the adult intensive care units and the vice, Chair of faculty development at up and see.

00:17:20Dr White has numerous roles university and is actively involved in student resident and fellow education.

00:17:25And in addition to his clinical and teaching role is Dr wise to true physician scientists, with over 175 peer reviewed.

00:17:31publications book chapters and editorials and several active and he sponsored grants current active grants include a randomized trial and interactive tools support surrogate decision makers.

00:17:42of older critical critically ill patients and another randomized trial of specialty palliative care integrated with critical care.

00:17:49For critically ill older adults at higher risk of death or severe disability verse incredible accomplishments and academic medicine, Dr White was chosen as a Hastings Center phone.

00:18:01fellows are elected, if their body of work to the left an indelible mark on scholarship and or public understanding of complex ethical issues and health.

00:18:08Healthcare life sciences, research and the environment, today, Dr White will discuss equity and the allocation scarce medical resources during the coven 19 pandemic, please join me in welcoming Dr White to the virtual lecture.

**Douglas White**

00:18:23Wonderful thanks so much for that Nice introduction and it's really an honor to be joining you today, I wish that we could be doing this in person, and I hope that will soon get back to that.

00:18:35Okay, so, as he said I’ll be talking about equity in the allocation of scarce medical resources during the pandemic, these are my financial disclosures, none of which pose a conflict for the material I’ll be presenting today.

00:18:49And what I’d like to do today.

00:18:52is to give an overview of the ethical goals when allocating scarce medical resources during a pandemic, and I want.

00:19:02Really highlight that this will be a high level view so if there are philosophers in the audience I apologize in advance that we won't be getting down into the.

00:19:12nitty gritty of some of the core controversies around how to specify these principles.

* 00:19:17Then I’ll highlight three real world cases of inequity and have scarce health resources are actually currently being allocated in the United States, and this has to do with.

00:19:26scarce icu beds, as one of them broadly access to hospital care and this issue of load balancing that that all unpack for you and then third.

00:19:35How we are allocating scarce coven therapeutics and.

00:19:39The latter two I think are particularly important now so I’ll spend much more time talking about those and a good deal last talking about how we're allocating or how we propose to allocate scarce icu beds, because I don't think that this is probably the most impactful aspect of.

00:19:58scarce allocation fx and then finally I’ll describe ways to attend to equity considerations within each of these three allocation challenges.

00:20:09Alright, so First things first let's talk about the ethical considerations that that come up when allocating scarce medical resources during the pandemic and.

00:20:20You know, one of the really.

00:20:24sort of core tensions that comes up in this regard is between promoting population health outcomes, which is.

* 00:20:32often considered a utilitarian aim and promoting equitable distribution of the scarce resource, which is often considered an equity or justice based distributive justice space consideration.

00:20:45And these are the two core considerations that if you scan the literature and look at state guidelines on how to allocate scarce resources, these are the two that come up the most and so.

00:20:56I would just point out that.

00:21:00This is often conceptualized and thought about.

00:21:05In a way, that Larry Gaston has nicely articulated when he wrote that twin moral impulses animate public health to advance human well being by improving health to do so, particularly by focusing on the needs of the most disadvantaged and when you look at this framing what you see as.

00:21:23This dual focus on utility or promoting population health outcomes and then also on equity or fairness, so that this is the, these are the two goals I mentioned, and I think what we'll see as I.

00:21:36Talk about these two goals is that there is a often attention or a need to make trade offs between the two.

00:21:44alright.

00:21:47So I also want to put up a definition of health equity so we're all talking about the same thing health equity means that everyone has a fair and just opportunity to be as healthy as possible, and this is a definition from Paula Braverman.

00:22:00In which she also wrote that achieving health equity can require steps to eliminate disparities in health and it's determinants that badly adversely affect disadvantaged groups.

00:22:13up to and including and I think this is, this is a really important consideration for this talk that one conceptualization of what equity means is not merely treating people equally.

00:22:25But by to show equal respect for all members of society.

00:22:29That we may need to allocate resources to mitigate the negative circumstances that caused disadvantaged individuals to bear the greatest burden of the pandemic and what this means is that.

00:22:38Resources may need to be disproportionately allocated to those groups rather than proportionately allocated.

00:22:48And so you know, I think that.

00:22:50This this focus on equity has become crucially important over the last 18 months during the pandemic, as we have seen.

00:22:59Data emerge about the profound racial and ethnic disparities and koba 19 outcomes that are that are playing out presently and throughout the pandemic and.

00:23:08Just for those who have not been following this part of it, the empirical data suggests that.

00:23:13racialized minorities are dying at two to three times the rate of white patients, and you know, the question arises, what, why is this, and what I want to point out is first that there's.

00:23:22there's absolutely no evidence that these differences are arising from, for example, genetic differences in genetic susceptibility that that that notion of genetic differences is not at the core of these differences and instead the disparities are rising, because of.

00:23:40What I think is the easiest way to frame, it is an unfair distribution of the social determinants of health and so what do I mean by this well.

00:23:48We are seeing racialized minorities acquiring or becoming infected with covert at a much higher rate than, for example, white patients, and this is largely because of things like.

00:24:00A disproportionate rate of racialized minorities living in poor neighborhoods with higher housing density living in multi-generational health households.

00:24:09being more reliant on public transportation and also disproportionately working in risky frontline essential jobs, you know food services industry sanitation.

00:24:21grocery store work agricultural work all of these are risky but necessary roles that are disproportionately filled by persons of color.

00:24:31Now the other issue and the other reason that we're seeing death rates that are so just proportionate and racialized minorities is that once these individuals become infected, they are at higher risk of dying from covert and again this is from the consequences of an.

00:24:49unjust distribution of the social determinants of health and, in particular, we know that.

00:24:55racialized minorities and black patients in particular have higher rates of risk enhancing comorbidities things like poorly controlled diabetes, hypertension.

00:25:04renal disease, heart disease asthma and obesity again all coming from arguably the social conditions in which they live and worse, access to health resources.

00:25:16And it's not solely a racialized issue we're seeing similar disparities, when you look across socio economic strata in the United States, and these are data from New York City, showing that death rates from coven are more than twice as high.

00:25:31among individuals living in very high poverty neighborhoods and that's the dark purple bar on the right 252 deaths per hundred thousand patients.

00:25:39Compared to patients are compared to individuals living in low poverty neighborhoods where the death rate is just 100 per hundred thousand and again these differences, presumably arise because of an unequal distribution of the social determinants of health.

00:25:56Okay, so with that.

00:25:59sort of background around that the core ethical considerations, promoting population health and promoting equity.

00:26:06And then talking about the racial disparities that have arisen during the pandemic, I want to now turn to the three.

00:26:12Cases real world cases that I mentioned at the beginning of the talk, where we are seeing profound and equities arising or there's high potential for them to arise, and so the first is in in equitable access to scarce icu beds.

00:26:28So this is a nice review and system, a systematic compilation of various States triage or icu allocation guidelines put together by pivotal and colleagues.

00:26:41In which they found that many States in fact most states recommend rate rain ranking patients on the basis of their expected in hospital mortality using this what's called the sequential organ failure assessment score.

00:26:54So what would that look like, and this is again a save the most lives approach, and I would flag that that that is.

00:27:03Remember, when we talked about the two ethical considerations saving the most lives generally should be grouped under a promoting population health outcomes or utilitarian.

00:27:13So under this approach, higher priority would go to the patients who are most likely to survive their acute illness and that the SOFA score is one way to calculate patients likelihood of surviving the hospital discharge it's assessed by measuring.

00:27:27Organ dysfunction and six organs and then assigning points for each of those sub scores for a range of zero to 24.

00:27:35And what we found it again more points equals higher risk of death and SOFA scores, at least in the pre coven era.

00:27:43were found to be highly predictive of death, as evidenced by this figure on the right, showing a mortality rate of less than 10% among patients with a.

00:27:51SOFA score of less than five and a mortality rate of greater than 90% and patients with a score of 12 or higher and in a relatively nice linear or slightly exponential actually relationship between the two.

00:28:08All right, the problem, though, is that using SOFA scores alone will exacerbate racial inequities and death rates from code, and this is a.

00:28:20There are a number of studies that have shown so i'll point out to you that the citations on the right for that, but the one study, I want to highlight is by bonnie and colleagues in which they examined.

00:28:30triage priority scores among nine almost 1000 covert patients with acute respiratory failure requiring mechanical ventilation in Chicago and they applied.

00:28:40In a modeling exercise an allocation framework assuming a scarcity of about 50% of needed ventilators.

00:28:50And they determine what would using a SOFA score due to the racial distribution of who was allocated the scarce ventilators and what they found is that.

00:29:01Black patients at baseline had worst priority scores and white patients, specifically through having higher baseline SOFA scores compared to white patients.

00:29:11And what I think is you know, a real strength of this study is that the authors went beyond you know simply describing the distribution of SOFA scores across racial minorities and white patients and instead or and also.

00:29:26Use what's called Monte Carlo simulation to simulate what would be the outcomes of triage if we use a SOFA based approach.

00:29:34And again that's summarized here what they found is that black patients versus white patients would have a significantly lower chance of being allocated a ventilator 42% versus 58.

00:29:45If we use the SOFA based approach and so that's the yet another sort of clear indication of how sort of a new narrow save the most lives approach to triage would exacerbate racial inequities.

00:30:01there's a second mechanism by which using.

00:30:06The SOFA score or really.

00:30:09what's what's emerging as other severity of illness based scores would exacerbate racial disparities, and that is this this finding that has now come out that these scores tend to be miss calibrated for black patients in such a way.

00:30:23That it would deep right if they were used in SOFA and resource allocation, it would D prioritize them and the idea here is that.

00:30:31What has emerged is that the SOFA score over cause mortality and black patients compared to white patients so, for example, if if two patients had the same score.

00:30:44A black patient and a white patient the actual mortality rate in black patients, although they should be equivalent of the score was well calibrated.

00:30:52is lower and black patients compared to white patients, and so this is a another mechanism by which, using a score like The SOFA score with disadvantaged already disadvantaged groups.

00:31:05Okay, so.

00:31:08As I said, one of the things I want to do is really talk about what could be done to mitigate the inequities that would come about if we used an approach that did prioritize saving lives and my colleague, Bernard lo and I.

00:31:22earlier last year published a paper that I’m not going to go into great detail on, but I just want to hit some of the high points about strategies that we propose to promote justice in icu triage, which is to say.

00:31:34Assuming that we are still going to focus on promoting population health outcomes and saving lives, how can we do that, in a way that does not systematically disadvantage racialized minorities and other disadvantaged groups.

00:31:46And we proposed a number of approaches, let me just start on the bottom of it with the procedural considerations that we proposed.

00:31:53So, first in the development of triage frameworks, there should be broad Community engagement when developing them, rather than leaving this to narrow groups who may either have implicit bias, or may not be aware of the ways that triage scores could.

00:32:11Disadvantaged groups without any meaning or idea to do so.

00:32:17Second, we propose the triage decisions should not be made by frontline clinicians and instead should be made by well-trained triage officers are triage teams and these individuals or groups should go and undergo training and implicit bias.

00:32:29Health equity and anti-racism.

00:32:32We also propose that, to the extent possible, the triage team should be blinded to the individual attributes of patients who they're making decisions for.

00:32:41Again, to minimize minimize the risk that there's any implicit bias leaking into decisions, and then the fourth procedural consideration that we articulated was.

00:32:51To establish some process of oversight in real time so that if there if there is evidence emerging of bias or an equitable outcomes in real time the triage framework could be adapted, where the triage process could be adapted.

00:33:06So, moving on to the first part of this.

00:33:10table we also propose some substantive criteria to go alongside criteria designed to promote population health outcomes and.

00:33:21i'm going to start from the bottom here because I think number three on this list is actually probably the most impactful which is there are a number of triage criteria that simply should not be used when allocating scarce resources.

00:33:34Particularly there should be no consideration or judgments about patients, quality of life, no consideration of long-term life expectancy.

00:33:42For reasons we can come back to using this with disadvantage racialized minorities and individuals with disabilities.

00:33:48We should exclude consideration abroad social work, gender, race, ethnicity or sexual orientation.

00:33:54And then the other one that I want to just briefly mentioned before we move on to the next use case issue is.

00:34:00We propose that there should be a correction factor introduced into individual patients triage scores among individuals who have experienced the highest degrees of disadvantage that put them at higher risk of dying from code.

00:34:15And so, how could one do this well, we proposed using a score called the area deprivation index the CDC has also created a measure called the social vulnerability index that the idea here is that this is a measure.

00:34:29That is calculated that is a geographic based measure of what I think of as sort of all cause disadvantage and it's essentially a measure that you can do it uses a patient's home address it, you can enter it into.

00:34:47website maintained by Amy Kind of the University of Wisconsin and it spits out what is their area disadvantaged score, and this is a score on a 10 point scale.

00:34:57That is based on 17 different measures of disadvantage and scores greater than eight are associated with worst health outcomes across a variety of conditions.

00:35:05And what we have proposed is that, rather than narrowly and solely using patients chances of survival a hospital discharge.

00:35:13Individuals with the highest degrees of disadvantage should have their scores corrected, not to put them at the front of the line unfairly, but instead.

00:35:21to lessen the degree to which they are unfairly disadvantaged by an equitable distribution of the social determinants of health.

00:35:30Okay, so that's the all I want to say for now about allocating resources, I see you resources and ventilators and I really want to spend the bulk of the rest of the time.

00:35:43On the issue of the two other use cases or test cases that I talked about, and so the next is this issue of inequitable an inefficient access to hospital care that's arising.

00:35:57And I want, what I want to do is make the case that what's happening now in the United States, and I think has caused I’ll show you the data has caused many lost lives.

00:36:06Is that the way we're allocating hospital beds is both inequitable and inefficient it's inequitable in the sense that it disadvantages certain groups, including racial minorities.

00:36:19And people living in poverty and it's inefficient, in the sense that it's resulting in needless loss of life and so to talk about this, we really need to sort of zoom out from.

00:36:30What we were just doing, which was focusing on within the hospital allocation of a scarce resource to think about how regionally we're going to be allocating.

00:36:40Access to scarce icu beds that, for example, hospitals, were being overwhelmed.

00:36:48And Sheri Fink and Jim Dwyer through some really remarkable investigative reporting in the New York Times revealed that.

00:36:58In the spring of 2020 when when New York City and La were both getting hit with huge surges that hospitals in poor neighborhoods were absolutely overwhelmed with patients and there were not nearly.

00:37:10enough resources to care for them, so there were you know huge shortages of doctors and nurses.

00:37:16And there were situations that were arising in which, rather than a nurse taking care of his or her usual one to eight patients on the floor, he or she was taking care of as many as 20 or 25 patients at a time and, in fact.

00:37:28There are a number of stories that came out of this that patients were actually being found.

00:37:32dead in the bathrooms of the hospital rooms, because they took off their oxygen to go to the bathroom there was the alarm went off there was no nurse available to come and.

00:37:42address the situation and patients coded and died before they could be found at the same time that this was happening in hospitals serving.

00:37:51Disadvantaged neighborhoods yes think this is safety and at hospitals just across the river in New York City, for example.

00:37:58private hospitals had available beds and they were not changing their staffing ratios.

00:38:03The problem that arose was that there was no formal mechanism in place in New York City to do what's called load balancing shifting the load of patients from.

00:38:12overwhelmed hospitals to hospitals with available resources, and this is the core of the inequity is this is happening in ways that are both disadvantaging.

00:38:26already disadvantaged groups, and these are preventable and needless deaths so it's also inefficient what's happening.

00:38:37there's a bit of data that I think is important to look at in terms of what we now know about the relationship between hospital strain and.

00:38:48and higher mortality rates, for example in the study of more than 140 4000 coven patients in 558 us hospitals during the spring 2020 surge Qadri and colleagues found that.

00:39:01Approximately one and COVID deaths was potentially attributable to hospitals strained by surgeon K full caseload.

00:39:09And what's important about these data is that they suggest that, even if overt triage you know denying the resource to a patient is not occurring.

00:39:18Unequal outcomes will occur between patients who are treated at overloaded hospitals and those that are treated at hospitals, that are not overloaded.

00:39:27And you may ask yourself well you know why is this an equity issue beyond.

00:39:31Thinking about all patients should have equal access to hospital care, the problem is that these breakdowns and load balancing across hospitals.

00:39:39will likely disproportionately harm black and Latino patients the poor and individuals who live in rural communities and why is this well.

00:39:48First, these groups particularly racialized minorities are more likely to see carrot safety net, hospitals and these are the hospitals, that both have fewer resources and icu beds per capita.

00:39:59or hospital beds per capita but also have been especially strained during the code pandemic, because more patients are being infected in these communities, because of the the distribution of social determinants of health.

00:40:12Second, and I think this is, you know, particularly a you know, an American problem is that racial and ethnic minorities and the poor disproportionately uninsured or underinsured.

00:40:24which may be an added barrier to these patients receiving care of being transferred if.

00:40:30hospitals are considering insurance status in weather in their decisions about whether they'll accept a patient and transfer, and this has come up already and been well documented again in.

00:40:40The Wall Street Journal, with some really good investigative reporting.

00:40:43obtained records from government officials in California that revealed multiple instances in California and which critically ill patients were denied transfer from overwhelmed hospitals to private systems with available beds due to a lack of insurance.

00:41:00Alright, so why is this like what, why is this load balancing in the United States, so challenging to achieve and again, this is it.

00:41:09Maybe not a uniquely American problem but it's a very American problem, there are a variety of issues that come up.

00:41:18First, with the exception of treatments that treatment requirements that come up under emtala recommendations.

00:41:24private health systems and private hospitals are really are not under no ethical or legal obligation to accept patients from other hospitals, who are not part of their usually covered population.

00:41:38And again, another part of this is due to due to how healthcare financing occurs, the United States, the prospect of financial losses from accepting uninsured patients is a real disincentive for private health systems to accept uninsured patients.

00:41:51The other thing that's a little more subtle on the on the economic front is that some health systems are wary that.

00:41:57These load balancing interventions during the pandemic might actually change in a negative way they're established and economically important referral patterns with smaller Community hospitals.

00:42:10And then finally some state mandated Internet.

00:42:14Interventions may essentially raised the hackles of these business leaders who run the health system to maybe opposed to what they perceived to be.

00:42:23unwarranted meddling or government intrusion into private business operations and then finally at the at the operational level.

00:42:31an organizational level most US States really don't have the needed infrastructure to implement a statewide load balancing system.

00:42:40And there's a lot of things that we need to go into that you need to have real time information about bed capacity and hospitals across the state.

00:42:46There need to be common reporting methods for patients in need of transfer, there needs to be a medical expertise in a centralized way for figuring out how to match those patients with the available beds and then a mechanism to fairly distribute these patients across hospitals.

00:43:01And so what I’d like to do is present three recommendations to facilitate load balancing across hospitals and again this is turning to the question of how can we over.

00:43:10Come these sources of inequity and the allocation of scarce resources currently and this this comes from a paper that I wrote with john hick and Lisa V zero l, who is the director of.

00:43:22The Arizona Department of Health and their medical preparedness and pandemic planning.

00:43:28group alright, so the first recommendation is that states and health systems should develop what are called voluntary mutual aid agreements that would be enacted when an individual hospitals capacity is overwhelmed.

00:43:41And, fortunately, a number of regions have already sorry I have already begun to do this.

00:43:47The create these voluntary cooperatives over the last 18 months often to good effect and these pictures, I put up here from the hhs Assistant Secretary for preparedness and response website that lists a lot of good resources for how to how to accomplish this, however.

00:44:07There have also been a number of weaknesses that have been exposed to what I would call a purely voluntary system of load balancing so, for example in Michigan.

00:44:16Some hospitals and in areas of the state that were minimally impacted in the second surge refused to sign on to serve as a relief hospital for hard hit regions like Detroit.

00:44:25On the grounds that they felt, you know we don't have an obligation to do this and we're worried that we're going to have a huge caseload in our region and we just need to be prepared and we can't give our resources to someone else and in Utah.

00:44:39Where there was a relatively successful and voluntary.

00:44:44system early in the pandemic is things played out leaders of the voluntary system and expressed concern that the system was.

00:44:52at risk of collapsing, because the hospital leaders of the very big health systems in Utah were beginning to waver in their commitment to accept patients from outside, hospitals, as the pandemic war on and, as things got worse.

00:45:07So the this the second recommendation and I’m sorry the slide is out of order here is that States should implement.

00:45:18An issue executive orders requiring hospitals to participate in load balancing strategies and the ethical and legal justification for this is actually quite clear.

00:45:29And well developed, you know, one of the core.

00:45:32responsibilities of State governments is safeguarding the health and wellbeing of its people, which is threatened when health systems fail to cooperate and there are some patients who are.

00:45:40For example, dying at outline hospitals that are overwhelmed and beds available at other hospitals.

00:45:46So Larry Gaston again, who I quoted earlier, has done a did a really nice job and developing what's called the model state of emergency health Powers Act.

00:45:54The core features of which have been adopted in many, if not all US states and for those of you who are interested, the relevant.

00:46:02authority the emergency public health authority derives from States right to manage and take private property during a public health emergency, such as hospital resources to deploy in ways that promote the public's health.

00:46:18And so that the recommendation, just to summarize That again is that public health officials should issue emergency orders to require hospitals.

00:46:25To participate in load balancing efforts during public health emergencies, including accepting patients and transfer that are not part of their normally covered network.

00:46:36And then the third recommendation that would that we propose is that States should implement policies to ensure that a patient's insurance status does not affect their ability to be transferred to a hospital with available icu or hospital.

00:46:52Regular Ward beds, and this is something that that actually California has already done, they early in the pandemic they saw as I mentioned that some hospitals were.

00:47:01Using insurance status in their decisions about whether to accept the patient and transfer and the California Department of Health issue to public.

00:47:09Health order stating that a patient's insurance status or ability to pay shall not be considered when making transfer decisions so again a really important policy level lever executed at the level of the State Government to identify a source of an equity and try to address it.

00:47:30And you know you may be thinking to yourself listen that's all great really nice recommendations, but given the political climate around government mandates, this is just unworkable in practice, and I would respond.

00:47:44by pointing out a couple things first these mandates.

00:47:48The idea of an executive order that mandates a hospital that to behave in a certain way doesn't raise that the same concerns about individual rights and bodily autonomy that have created push back around vaccine mandates for example and Ben mask mandates.

00:48:03And second we already have proof of principle in Arizona under a republican governor in fact that that these recommendations are feasible and so specifically sorry specifically.

00:48:17The Arizona Department of Health services developed what is called the Arizona surge line, which is a centralized hospital capacity management system to coordinate statewide transfers.

00:48:28From overloaded hospitals to those that have available beds and governor Doug Ducey issued an emergency order a binding emergency order requiring all hospitals and.

00:48:39In Arizona with available resources to accept patients and transfer.

00:48:44And not only did the Arizona Department of Health deploy and oversee this they've done a really nice job.

00:48:51tracking outcomes and this look they actually summarize that in this new England journal catalyst paper I’ve mentioned here, but essentially what they found is that this low balling.

00:48:59At this load balancing effort has been life saving, particularly among American Indian populations who otherwise would have been largely dependent on.

00:49:08Essentially, badly underfunded Indian Health Service hospitals for care and so since April of 2020 the Arizona surge line has transferred more than.

00:49:177900 patients from overloaded hospitals to those with beds and almost half of them were American Indian so really again a great example of how we can actually achieve equity, while promoting efficient and an effective use of scarce resources.

00:49:39And then the last situation, I want to call attention to is one that that is very much happening right now and, in fact, has been happening throughout the pandemic, which is enact in equitable access to these novel.

00:49:55Cobra therapeutics that are coming out and that have been over each of each one's come out, it has been scarce at the beginning, and it sometimes throughout the pandemic and so.

00:50:07I should I’m going to skip this slide but the if you just look at the bottom, though, the ones that that have been particularly scarcer things like monoclonal antibodies total is mab Ram desert beer and then actually most recently paxil of it, which is the Oral.

00:50:23Oral agent that we've we hope will be quite effective and tamping down the pandemic.

00:50:30When you think about allocating scarce resources, one has to be quite sensitive, not only to this issue of.

00:50:38How we distribute it within a hospital or within a clinic but also to the risk of geographic and equities if a single hospital gets it while others in the state don't that's a source of geographic and equity.

00:50:49And then the other issue is called temporal and equity and that which is to say if people, for example.

00:50:55Get the drug when it first comes out and it's all used up in two or three days.

00:51:00there's a there's a temporal inequity because the patients who come later won't have access to it and that there's no reason that patients who come first should get it and higher priority than patients that come later.

00:51:13And so what can we do about this.

00:51:16You know I want to give an example from Pennsylvania that has, I think, been a really important.

00:51:25model for how states can establish ethical guidelines for how to allocate these emerging covert treatments, and so the Pennsylvania Department of Health.

00:51:35released recommendations for the ethical allocation of these emerging treatments and just full disclosure I was part of this committee.

00:51:41But the core three ethical goals that they articulated were first that all patients who meet eligibility for the for the scarce drugs should have a chance to receive treatment.

00:51:52that's an important consideration that will come back to, because it really constrains how the resource can be allocated.

00:51:58Second, they propose that, to safeguard the public's health that one of the goal should be to safeguard the public's health by allocating the treatment in ways that promotes Community benefit, and this essentially.

00:52:09What I think was meant to convey by this is this idea that we should prioritize patients who will benefit more, rather than giving it to patients with.

00:52:18With less likelihood of benefiting and then, finally, and I think to Pennsylvania's credit they proactively said we should be mitigating disparities in how we allocate covered.

00:52:31treatments and this is, I think subtly different than just saying we should be.

00:52:38Taking efforts to prevent disparities, this is saying we need to be proactively mitigating them and what the implication here is that we will need to increase access for Racial minorities and those who live in economically deprived areas.

00:52:53I'm going to skip this slide but so at up MC and the University of Pittsburgh, we developed a weighted lottery to try to accomplish this on a weighted lottery.

00:53:04Is a random selection process that provides increased or decreased chances to individuals according to pre-specified.

00:53:11pre-specified ethically relevant attributes and what's important is that everyone who has a valid claim on the resource I everyone who, for whom it's medically appropriate has a chance to receive treatment, but the weightings allow you to.

00:53:24vary the chances, according to the ethically relevant ways.

00:53:29So, how did we develop this and how did we develop the weighting factors, well, we convened an iterative multi stakeholder process, which included patient and family representatives diversity and inclusion experts hospital operations experts clinicians economists.

00:53:47Emphasis and health experts, and I should say that we were really.

00:53:53indebted to economist at MIT and Boston University, who have spent much of their lives, developing strategies for how to allocate things like.

00:54:03spots in a charter schools that are scarce and lotteries are used and we translated those principles into a weighted lottery to allocate the scarce COPA drugs and so first, and this was for rum desert.

00:54:18We had four weighting factors first to mitigate racial and socio economic and equities, we gave a 25% increase in chances to individuals from highly disadvantaged.

00:54:27Communities or regions, using the area deprivation and next that we've already talked about.

00:54:32Secondly, gave higher chances to those on Pennsylvania's list of frontline essential workers.

00:54:37With the justification being honoring the reciprocal obligation, we have to individuals who are putting themselves at higher risk for the public good, and I think it's important to note.

00:54:47That using this this criteria and prioritizing frontline essential workers would also mitigate racial disparities, because, as I mentioned frontline workers in the United States are disproportionately racial minorities.

00:54:58And then, to promote population health outcomes, we gave 50% lower chances to individuals who were expected to die in a year from an end stage condition.

00:55:04And also 50% lower chances to individuals requiring mechanical ventilation or ecmo, and this is again a room does have your specific.

00:55:12Criteria and because midway through the application process data was published showing that patients with very advanced respiratory failure derived blessed benefit from desert air.

00:55:25And so, this is just a slide showing how this change the law, the lottery odds for these individual groups.

00:55:33But what I what I really want to talk to you through is how we actually did this in a 21 hospital health system, but the pmc health system during periods, where room does have here was short.

00:55:44and basically all patients who met the emergency use authorization criteria for vm desert, there were eligible.

00:55:50And we implemented a proactive screening process to find all patients in the hospital, who met.

00:55:56criteria for the use of from does appear, which is to say that had hypoglycemia or were requiring supplemental oxygen and then a local allocation team Member reached out to the clinical team to confirm eligibility.

00:56:08And I just want to highlight that this isn't this proactive approach we think is really important, rather than, for example.

00:56:15Leaving it to individual clinicians to identify that their patient might be eligible for this scarce drug and then make a referral.

00:56:22There are all kinds of implicit biases that can come up in that in that deliberative process on the part of the clinician.

00:56:29And then we had a centralized approach for conducting this lottery across all 21 hospitals coordinating hospital in Pennsylvania, including using a blinded.

00:56:39team to conduct the lottery once a day, using a random number generator and that that's how we tried to prevent the leaking into the application process of other considerations distinct from the four that we proposed and used.

00:56:57Okay, so these are the demographics, of the patients and note that many were from disadvantaged neighborhoods and one in five were essential workers.

00:57:07And so.

00:57:09shown in the table, we found that it was possible to use this this lottery, I think this you know what was important about this is that this was really a proof of principle and a proof of concept that we can use a weighted lottery in the acute care setting.

00:57:25The screening happened on 100% of days, the number of eligible patients that I’m sorry, the number of ineligible patients and our dental into the lottery.

00:57:33Was zero so we know one entered into the lottery who shouldn't have been and all of the patients who are identified as eligible were entered into the lottery and then all of the patients.

00:57:43Who were found to be.

00:57:47Receiving or being offered room does your were in fact if offered them disappear, and what we also found when we ultimately looked at the outcomes of who what the chances were of individuals from these four groups what their chances were to receive.

00:58:04From does have here in the lottery, we found that essential workers and individuals from high API areas were, in fact, given a higher chance.

00:58:12In the weighted lottery than they would have received in our competitor was just a simple lottery, where everyone received the same chances, based on the availability of the drug.

00:58:21And we also found that individuals near the end of life and those receiving ecmo or mechanical ventilation received lower chances, as per the design of the weighted lottery.

00:58:32i'm going to skip that and then the last thing I want to say, and this is.

00:58:39separate from the ethics of it, this has to do with the importance of.

00:58:45Continuing to learn about these novel COPA therapeutics that are, I would note.

00:58:51Only authorized for us not approved and are on a relatively thin database, I think there is a really important opportunity to continue to learn it while we are allocating these scarce drugs and.

00:59:05Although the primary goal of using a lottery is to promote fairness and how we allocate a scarce resource.

00:59:11A secondary benefit is that lotteries created what's called a natural experiment, because they introduce randomness in who receives the scarce treatment and this.

00:59:19This randomness allows researchers to make valid causal inference is about a treatment efficacy by comparing outcomes among patients who did and did not receive a drug in the lottery.

00:59:31And this paper that I’ve referenced here is one in which we propose not only using a lottery but also centralizing that lottery at the State level, because that is where.

00:59:41you'll get begin to get the biggest number of patients that that could possibly be gotten into a lottery and that's where you'll begin to see the benefits of being able to evaluate the efficacy of a scarce drug.

00:59:54Okay I’d like to stop here because I really I know that there's a lot we've covered and these concepts raise a lot of questions so I’m going to stop and it looks like we have a 10 or so minutes for questions thanks, very much for your time.

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**Izzy Budnick**

01:00:08Thanks so much sacrifice those that was really fantastic.

01:00:12folks I leave your message your questions in the chat or you can ask them mute and ask your question directly.

01:00:20I've got a question just to start us off with regards to load balancing there any sort of case studies of that in health systems like the NHS where it's one sort of like centralized state run.

* 01:00:33efforts and whether or not they've done a better job at load.
* 01:00:36Balancing and these.
* 

**Douglas White**

01:00:38Great it's a great question this and I didn't want to harp on this too much because it will reveal too much about my beliefs about health policy and politics but.

01:00:48Yes, we know a good there's been a number of publications from countries with universal health care systems and Italy is actually the biggest example, so there are clearly things that Italy.

01:00:59Many of us that giddily did not do well in terms of how resources are allocated in the very beginning of the pandemic, but one thing Italy did in an amazingly efficient and great way is from the very beginning, they were they had they mobilize.

01:01:13system to transfer patients from overloaded hospitals in the Lombardi region, which is where that first outbreak came.

01:01:19Across the state remember Lombardi’s in the north of Italy, they were flying patients and helicoptering them all the way down to the sub the tip of the boot in Italy.

01:01:28In order to load balance, and this was, I think, arguably much easier in Italy because.

01:01:33Of the national the nationalized approach to health care they already had the infrastructure and the relationships for trap transferring patients between hospitals and essentially their one health system.

**Izzy Budnick**

01:01:48And a couple other questions so one from Dr to fight does, how can state or federal government's help support load leveling to hospitals to improve equity and access.

01:01:58Specifically systems must make tough financial decisions to cancel delay elective procedures in order to make that staffing space for our patients, which can negatively impact the hospital short and long term viability, what role does the government play and offsetting those losses.

**Douglas White**

01:02:11yeah so wonderful question there' a lot embedded in that question, but what I will say is that.

01:02:19I think that the two things first.

01:02:22There are coated resources that many states have brought to bear on paying for the cost of.

01:02:28Hospitals who are caring for uninsured patients that's number one number two the states have also required.

01:02:34Hospitals that accept patients and transfer it to be paid at in network rates, for example, and so there, there are economic levers that can be used to to do this, but I would say the other thing that's really important is that.

01:02:48State level intervention requires all hospitals to.

01:02:55To be subject to the same rules, and so, if one hospital, for example, counterfactual if one hospital just said, listen we're not gonna.

01:03:02we're not going to do this we're not going to participate in load balancing and we're just going to continue to churn out our elective cases that's unfair right and not.

01:03:10While other hospitals are, as you noted postponing elective cases that are quite lucrative in order to care for for COPD patients who economically, we know and then states.

01:03:19These patients actually are quite an economic burden on hospitals, and so the idea of making sure that all hospitals are being held to the same rules is a really important one.

01:03:29I will say for people who are interested in trying to find ways to do this better than, for example, what's happening in Arizona.

01:03:37One of the untracked knots on this is how to encourage and require hospitals to and lock step.

01:03:46back off on the kind of elective cases they're doing because, again, this is where a hospital could theoretically game, the system by saying well the way that.

01:03:56Patients are being allocated in this load balancing strategy is where they're looking at which hospitals have beds if we just keep churning out our elective cases will fill up our beds.

01:04:06they'll see that we don't have available resources and we won't get allocated patients and that's why it's so important to make sure that all hospitals.

01:04:13are playing by the same rules and it's been you know, for a variety of reasons, that the elective cases issue has been a really hard one at the at the policy level and in many states.

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**Izzy Budnick**

01:04:26Just as a follow up is that is that sort of stratify your adjusted, based on the size of the hospital and they're kind of bottom line I just imagine you know us here at uva versus even a.

01:04:39Regional hospital without the same sort of patient volume are certified you know filling ability, based on different complexities that adjusted for smaller.

**Douglas White**

01:04:49It is yeah so, for example in Arizona they're the surge line did a really nice job of allocating according to a hospitals.

01:05:00proportion of the available proportion of beds or proportion of market share that's I think that's actually the easiest way to say it.

01:05:09So the bigger hospitals, those with a bigger market share or allocated more patients than the smaller hospitals, the other part of it is that I think it's really important to note is that.

01:05:19At this phase of the pandemic, it really is the small rural hospitals or community, you know critical access hospitals or safety net, hospitals, that are the ones that are being kind of overrun with patients and so it's.

01:05:34It is an effort on the part of.

01:05:39Large health systems to be able to say and step forward and say we are willing to engage in a public health enterprise.

01:05:47For the good of all patients by accepting patients from these other hospitals it's rare that it's going in the other direction that that the big hospitals are so overwhelmed.

01:05:55That they're transferring to small outline hospitals, but I will say that.

01:05:58There is, there are some work being done on what we're calling reverse transfer from the big hospitals, that you know that the less sick patients in the big hospital get transferred out to the smaller hospitals that have beds and the capacity to care for them.

**Izzy Budnick**

01:06:13To mention is what are your thoughts on allocation of resources as an example ecmo for unvaccinated patients versus those vaccinated and need to back mile maybe for a nano coated reason.

**Douglas White**

01:06:24yeah so obviously this is a topic on many people's mind, in part because I think there's been a lot of obviously a lot of frustration.

01:06:36With people not getting vaccinated and some sense that this is a you know these are individuals who are selfish and are not willing to make.

01:06:45efforts for the public good, I do want to just counter that narrative a little bit There certainly are people that fit that but I would also point out that.

01:06:57we're seeing lower vaccination rates in historically marginalized communities racialized minorities and the reason there, I think.

01:07:06Has has as much to do with distrust of the health system it for good reason, based on past experience, as it does decisions about personal choice and public benefit.

01:07:18So that's my bottom line view is I think it's, it is not wise to be making allocation decisions narrowly on vaccination status, I think the other thing is that.

01:07:31Potentially you could do it if evidence immerse, for example, that an unvaccinated patients.

01:07:39Who required ecmo had worse outcomes than vaccinated patients who required ecmo that would be agnostic to the personal choice part of it, and really only looking at prognosis.

01:07:50But those data are not we don't have those data, you know, by the time someone gets to ecmo it's not at all clear that it matters, whether you are vaccinated or not in that in that decision.

**Izzy Budnick**

01:08:02question is, how do you reconcile the obligation to advocate for best treatment for one's own individual patient you're caring for versus the need to bounce or population.

**Douglas White**

01:08:14Yes, so great question this very, very, very important, and this is.

01:08:21A, this is a tension that that I think every hospital that has really grappled with this has encountered that.

01:08:28How to prevent the moral distress that frontline clinicians may feel if they had for put in a position where they had to advocate against their individual hospital their patients interests.

01:08:39and also how to create a system where patients do not feel abandoned by their clinicians and the short answer is, is that.

01:08:49Most recommendations that I certainly agree with this are that the actual triage decisions should be made by a triage team, which would allow who are not taking care of the patient.

01:09:02Doing this would allow the frontline clinician to continue to be a trusted source for the patient to continue for their advocated for their for their best interest and also allow that these tough allocation decisions are made in an equitable way.

01:09:20And so, for example at up MC that we when we allocate scarce room does a year and now we're doing the same for every shelled.

01:09:29The monoclonal antibody pre exposure prophylaxis we took the frontline docs out of that process and we had an automated process where we were able to identify all of the patients in the system, who qualified for the drug and Michelle as well, and then, with a random.

* 01:09:48Number generator and the weighted lottery we identified the patients who were going to be offered it and we reached out to them individually to offer it.
* 01:09:56When when other patients requested it, that clinicians couldn't prescribe the dog themselves that all of these decisions had to go through the resource allocation committee.
* 01:10:06So that that's what we have done so far and it I think it's it's not perfect, but it is less bad than any other approaches that we have been able to identify.

**Izzy Budnick**

01:10:17unmute Dr Luna so you can ask you the question directly.

**Max Luna**

01:10:22Thank you, thank you, though, to white am who cannot let this talk low without the variable congratulations to the dog and.

01:10:31Particularly that the answers are in, I have a question, you were I have particular interest rate recently on how do we allocate paxil with in outpatient resources to vulnerable communities in a way that then.

01:10:47It, are there any models being developed that includes a di a periodic review index.

01:10:56A clinical features, but now a vaccination status that portrays protection, it makes a patient, perhaps not that high risk and that may not need back to it.

01:11:07And I know it's a challenge if there's many patients that we don't have access to a patient care access to our institutions, how do we get these people in and then apply our risk tool.

01:11:20yeah provide that a new agent that I think it's gonna be grateful.

**Douglas White**

01:11:25When I’m yes absolutely so Max critically important I So if you if you want a model for how to do this with this working group that I’ve been part of we have put online the what we have called them model allocations I’m using a weighted lottery, and I think that.

* 01:11:46and other groups are now modifying it for packs love it, it was it was developed initially for them does a year, but when we when we developed it.
* 01:11:53we've chosen allocation method I either the way that lottery that could be adapted, based on the clinical changes that come up with it, for example, the next new dragon tax limit is one of them.
* 01:12:05So so absolutely it's there if you if you just Google pet model allocation policy for scarce drugs, it should pop up.

**Max Luna**

01:12:13Vaccination rates being included now, because as so protective for hire for high risk patients.

**Douglas White**

01:12:20yeah, so this is, this is an ethical choice that is independent of the allocation mechanism right a weighted lottery is an allocation mechanism and the work that needs to be done.

01:12:33by individual states or individual health systems, but in my view, preferably individual states is to identify the factors that are ethically relevant and should go into the way that lottery.

01:12:45it's just again to sort of come back to the vaccination status thing I think it's probably not going to work to to use vaccination status, yes, know as giving people higher priority because think of all the immunocompromised patients who have.

01:13:00been vaccinated but the vaccine has been effective, because they have a compromised immune response to it, those patients are equally, if not more at risk.

01:13:11As patients who have not been vaccinated but the idea is figure out your allocation method figure out the ethically relevant criteria.

01:13:21And then ensure that there is sort of broad consensus at the state or regional level, that this is the approach, the last thing I’ll say on it, because I see that it's one is that there's a major problem right now with how paxil bit is being allocated and I think that this is.

01:13:37happening across the country, but in more in multiple states packs little bit is going straight to pharmacies, which leaves very little ability for health systems and states to.

01:13:49Have a framework for fair allocation and instead it's being allocated in the New York Times just had a great story on this as well.

* 01:13:56to people who are essentially well connected in the health system and, obviously, that will introduce disparities, you know people who have quick access to their doctor have the knowledge of which.

01:14:07pharmacies have gotten the scarce drug and then have the ability to race around to these multiple pharmacies quickly to find it and, in my view, that is the definition of an unfair system.

**Izzy Budnick**

01:14:23After a while it kind of one o'clock but we actually have a question from a resident if you wouldn't mind one more.

**Douglas White**

01:14:28sure.

**Izzy Budnick**

01:14:29This is one of our rockstar 13 years Joseph Joe go for it.

**Joseph Van Galen**

01:14:34So, Joe thanks for the talk, Sir, one thing that caught my eyes in your slide was this idea that in these sort of centralized.

* 01:14:41Allocation tools we shouldn't be using like long term life expectancy or quality adjusted life years to make those decisions.
* 01:14:49That seems like very different than what I’m seeing from people like usps tf and N ic in the United Kingdom, as we moved us to have more.
* 01:14:57Objective decision tools for explosive allocation just wondering if you could talk a little bit about that and sort of what consensus exists, if there is that those shouldn't be used to make these sorts of decisions thanks are.

**Douglas White**

01:15:10We have no, thank you, so if you are a hardcore utilitarian you'll disagree you'll say listen the, the most important thing is to maximize population health.

01:15:21One of the ways that we specify population health outcomes is by looking at the number of lives saved and perhaps the quality adjusted number of life saved but I’ll just say two things about why that is incredibly hard to.

01:15:36Think about how to operationalize and then the ethics of it first from an operational standpoint, there is, there is great.

01:15:44controversy about how and no accepted measure of what constitutes quality of life that could be applied quickly and.

01:15:52equitably across populations for this purpose, so there's simply a measurement problem, but even beyond that I think there are there are legitimate concerns about whether.

01:16:03Quality of life should be a consideration the other part of it, the long term, life expectancy issue so here's The problem we know in the United States that because of.

01:16:15Social determinants of health and an unfair distribution of those that that black patients and other racialized minorities have a shorter life expectancy than then white patients and so.

01:16:24We would be exacerbating disparities if we used an approach to allocation that factored in long-term life expectancy.

01:16:32A slight wrinkle on this and I won't say much about this is just to say that that's different than saying that there needs to be a minimum duration of benefit that a patient could be expected to gain and that's where I think most.

01:16:45States and health systems have landed is to say, you know patients who are expected to die in.

01:16:51In less than six months or less than a year there's so little clinical benefit to be gained, that they should be given lower priority but beyond that, if you're going to live two years or five or 15 you should be treated equally.

01:17:06And I support that I think there there's, and this is something that frankly.

01:17:12As a MIA culpa I don't think that that I got right and that the group that that that I was part of got right when we first developed the first iteration of our allocation framework in which we advocated considering five year prognosis.

01:17:27and giving higher priority to individuals expected to live at least five years, I think that was a mistake and I think sticking with a shorter period.

01:17:36For clinical benefit is appropriate, given all of the equity concerns that have come up.

**Izzy Budnick**

01:17:44I think so much for tacking on another question, it was really fantastic talk and even better Q and I really appreciate your time that was that was really timely and some definitely some essential information there.

**Douglas White**

01:17:56Thank you, thanks so much for having me.

**Izzy Budnick**

01:17:58Of course, a barista that.

**Douglas White**

01:18:01are taking take care.