Lauren Davis: Hi, and welcome Patient Power. I'm Lauren Davis, medical journalist and your host for this ALL roundtable to discuss the latest from the recent ASH conference. So, many of our Patient Power audience have blood cancers, which is why this conference of hematologists is so important. This program is sponsored by Amgen, and we are super appreciative of their support. As with all Patient Power programs, our sponsor has no editorial control over the content.

So, I'd like to introduce our guests one at a time and have them wave to the camera. So, Dr. Pat Brown is the Pediatric Leukemia Director at Johns Hopkins Medicine in Baltimore. We also have Dr. Hetty Carraway, she's the Director of the Leukemia Program at the Cleveland Clinic, and she treats the adults. I know ALL is predominantly a child's disease but there are plenty of adults who also get this. And also, we have Dr. Kavitha Ramaswamy from Memorial Sloan Kettering Center in New York. We just thank you so much for joining us.

So, let's go around the virtual room. I think it would be great to just hear about what do you think are the most exciting things that have come out of ASH this year? And Dr. Brown, if you'd like to kick us off?

Dr. Brown: Sure, Lauren. Well, thanks a lot for the invitation. It's great to be here, and hi, Hetty and Kavitha. It's great to see you guys. I think there's so much that's been covered at ASH. I think a couple things that jump out at me are some of the optimizations that are ongoing with the CAR T-cell platform. And then the abstracts that have to do with now that CAR T-cells for ALL have been FDA approved and are being used in the commercial real-world setting, we're starting to see some of the data come out of that real-world analysis and comparing the outcomes when these are used in the real-world setting with what was seen in the clinical trials. So, that's one big area.

I think it's been exciting to see some of the data coming out using some of the newer MRD technologies, the next generation sequencing, extremely sensitive MRD technologies and some of the data with regards to the impact of that on disease outcomes. So, those are two of the general areas that I think have jumped out at me.

Lauren Davis: Great. And then before we move on, could you just explain MRD for our audience?

Dr. Brown: Oh, sure. MRD stands for measurable residual disease or minimal residual disease. Most people use measurable residual disease as what it stands for now. But it's basically just a tool that's used to detect very low levels of leukemia in the bone marrow or the blood of patients with leukemia as they're undergoing therapy. And that has been used as a prognostic factor or risk stratification factor in certain settings, and it's an important method for us to use to know how best to treat patients.

Lauren Davis: Great. Thanks. Dr. Carraway, what's exciting this year at ASH?

Dr. Carraway: Yeah. I would say that I really want to echo the comments that Dr. Brown just led with, the CAR T therapies are exciting for patient populations. We're learning a lot in the adult world by following what's happening in the pediatric world. I think much of what we've been excited about in the adult space is really the integration of some of these antibody directed

therapies and integration of them in the upfront setting. Many of the ongoing studies are not yet realized in terms of the complete accrual to finding out if we can add these agents to the upfront or even consolidative therapies for patients with adult ALL.

And so, we're eager to learn if we can improve the upfront outcomes for patients, but I don't think we're going to be seeing as much of that data as we want quite yet. But I think it has the large likelihood of changing the way that our upfront therapies are going to be modeled, but for our older patients and our younger patients.

Kind of adding on to some of the comments that Dr. Brown made, our ability to detect different types of fusion genes and our ability to use novel therapies to target those fusion genes, that type of technology is emerging and is promising for small subsets of specialized populations of specific ALL. And those subpopulations may be different in children versus adults in terms of how many are represented in the adult population versus the pediatric population. And for those reasons, we may start to learn more about why the outcome for our adult patients is not as favorable compared to our patients with pediatric ALL, and potentially have therapies that may be more personalized and specific to those populations.

And then the last comment I'll make is that some of the technologies that Dr. Brown highlighted, just our ability to detect measurable residual disease or minimal residual disease, whatever terminology you want to use, we kind of call that MRD, if we can identify patients where we've had good control of the disease and the MRD negativity, if we can't see any evidence of disease, we may be able to have studies where we're able to stop kind of the heavy continuous chemotherapy or maintenance therapy and spare them the toxicity to these therapies because they may not be adding benefit if we have such deep remissions. Those questions are remaining, I don't think we'll be seeing that data, but the data that we are seeing is asking those questions, and then it's making us very excited about what potentially will be in the future.

Lauren Davis: That's fantastic. And I think it's really exciting just from a patient perspective that patients are really starting to better understand how they're harnessing their own immune system to improve, to have better outcomes, and that's very exciting. Dr. Ramaswamy, what's exciting about ASH this year from your perspective?

Dr. Ramaswamy: Yeah. I think in a lot of the similar themes that have already been mentioned, but specifically, in thinking about using, as you mentioned, immune system and kind of emerging therapies with CAR T-cell, but trying to identify patients where these therapies can be helpful in terms of replacing significantly toxic therapy, like transplant, so how that may replace that therapy. And trying to understand which patients that particularly have poor prognostic factors, poor cytogenetics that it can be used.

And also, beyond the kind of standard known FDA approved CD19-targeted CAR T-cell, trying to understand other potential antigen targets that could be harnessed, whether it's dual CAR T-cell CD22 therapy or even others.

And then, just echoing a lot of the MRD discussion that's been had, and pediatric leukemias, of course, we have such significantly improved outcomes using so many different prognostic markers, MRD being one of them. And if that can be further refined, how to kind of generalize

that information or how to potentially replace our gold standard of other methods, like flow cytometry, and how to do that in kind of systematic way for all patients. So I think those are the kind of things that I think really have emerged from this conference for me.

Lauren Davis: Great. And then just for our patient audience, can we just dive a little deeper into CD19 and CD20? Those are targets, is that right?

Dr. Ramaswamy: Yeah. So, well, CD22 specifically.

Lauren Davis: Thank you.

Dr. Ramaswamy: Yeah. So there are antigens, proteins on the surface of leukemia cells that are a lot of these therapies, as they target, are trying to I guess take advantage of or harness in terms of their therapy, so you have to have the target in order to be able to use the therapy. So, CD19 is a pretty UPIC, universal marker protein on ALL lymphoblast, but there are others, another one being CD22, which is pretty uniformly present in most leukemia cells. And so that could be something that can be also, if you will take an advantage of in some of these therapies.

Dr. Brown: One of the things that Kavitha mentioned is that other antigens, like CD22 and CD20 also, rituximab (Rituxan) is an antibody-based drug that's used primarily on the adult side since the ALL in adults is more likely to express it, but one of the major problems that we've seen with antigen directed therapy is the ability of leukemia to just turn off that antigen and grow back despite that targeted therapy. So, CD19 escape where the ALL cells that are being targeted by a CD19 CAR T-cell or antibody therapy, like blinatumomab (Blincyto), can simply down regulate their CD19 and relapse.

And so, one of the approaches that we're very excited about is the ability to use multiple antigen targeting simultaneously, or even sequentially, to try to prevent that problem from developing. So, it's a combination of which proteins are expressed on the surface of the cells, but also, can we target simultaneously more than one of those to prevent the leukemia from figuring its way around a single antigen targeting strategy.

Lauren Davis: That's really fascinating. And I think that sort of leads me into my next question about genomic alterations. So, how do genomic alterations at diagnosis… How are they likely to steer treatment decisions for both patients rather for both pediatric and adult patients?

Dr. Brown: Well, I think I can start by saying I don't think that the genomic... so when we talk about the genomic landscape with an individual patient's leukemia, I think that's not something that is likely to dictate the application of immunotherapy to their case, at least not yet. So, these antigens, CD19, CD20, CD22, can be detected using flow cytometry, which is a very common diagnostic technique, and it doesn't really have to do with the genetics of the leukemia itself. Where the genomic workup of the leukemia can be extremely important is in two different ways.

One is one that Hetty already mentioned, which is that we can potentially identify mutations that activate signaling pathways that can be targeted by small molecules. So the most well-known example of that is Ph-positive ALL, or Philadelphia chromosome positive ALL. So there are drugs that specifically target the ABL1 kinase that's activated in that subset of leukemia. And so that matches a patient's genetics of their leukemia with a specific drug. There's been an explosion in knowledge about cases that have activated kinases but are not Ph-positive, and we

call those Ph-like. And many of those are also targetable by small molecules. And so I think that's what Hetty was really referring to is we've been able to identify now most... it happens mostly in adults but also in pediatrics, these Ph-like cases.

So, one aspect of the genomics is to identify patients who might benefit from small molecule drugs, not immunotherapy, but small molecule, oral drugs. The second aspect is in risk stratification, and Kavitha had mentioned that trying to understand which patients need intensive therapies and which ones don't. Some of the underlying genetic abnormalities that drive leukemia can tell us a lot of information, predictive information about whether patients are likely to be cured with standard chemotherapy or even immunotherapy or not, and whether to pursue the more intensive, potentially more toxic therapies, like transplant. And so, for example, p53 mutations, when they occur in ALL, that's a very high risk group, and those are patients that may be more likely to be moved towards bone marrow transplant.

Lauren Davis: So it sounds like, just to break it down for our patient audience, our patients and their caregivers, it sounds like personalized medicine is just making huge improvements in overall survival and better quality of life because sounds like, to me, the drugs are just so specific and they're really literally targeting the target.

Dr. Brown: I would say I hope so. Now I don't think the data, what we have been able to show is that we can identify these patients and we can treat them with the drugs. Whether that translates into better survival, I think that's what we're all hoping to see, but the data simply, and I would love to hear what Hetty thinks, I don't think the data are mature enough to know... so I think we're doing personalized medicine, that is clear, whether that's going to translate to better survival, we certainly hope so, but I think the jury is still a little bit out on that.

Dr. Carraway: Yeah. I'm going to chime in there and I completely agree with that statement. And I think what patients need to know that are watching is that it is important at the time of diagnosis, or even at a time of relapse, we have the technology to do these types of studies. And so for the adults, I think this disease, it doesn't happen as frequently in adults, but it certainly is happening. And so patients need to be able to ask questions around what kind of testing are you going to be doing for my ALL and is that going to help me choose the best options, whether those options are inclusive of standard of care or even clinical trials that are ongoing that they may be able to benefit from, as Dr. Brown is saying, the jury is still out with that.

But from a biological standpoint, we remain very excited about that because we believe that the underlying biology and the pathobiology of the disease itself, we're getting better understanding of that and refining our therapies in a way that makes logical sense. And so we're very hopeful, but we need to really solidify that with data. And so I think we're eager, we're very excited about that. But I think it means that patients need to be equipped to be asking for that testing and to seek out studies that they may benefit from, depending on what their results are.

Lauren Davis: Mm-hmm. I think somebody mentioned toxicities there, and Dr. Ramaswamy, I'd be curious to hear your experience. How are you mitigating toxicities in children? And also, in terms of long-term effects, this is sort of a two-parter, I often think about in pediatric cancer, are you talking to parents about onco-fertility? Even though their children, thinking about their lives as they carry on through life since there's a lot of exciting cure rates in leukemia for children, so I'll just open that up to you.

Dr. Ramaswamy: Yeah. I mean, absolutely. I think long-term side effects are a significant part of any initial conversation with a parent and their child who's newly diagnosed. There's a lot that we can do initially and try to understand in terms of trying to mitigate long-term side effects. There are some things that we can be very proactive with in terms of cardiotoxic or heart affecting side effects and in terms of both monitoring and both in the short-term, during treatment and post treatment, and others, of course, in terms of thinking of a child going through leukemia therapy, in terms of growth and other hormonal potential side effects.

And then in terms of fertility, it's a very complex approach, really depending on, of course, the gender, the age of the child, whether they're prepubertal or pubertal, in terms of what the options that are available, I think it's definitely part of the conversation. There's a bit of a timeliness, of course, as well in terms of starting therapy in children who have acute leukemia. So that is also another complicating factor, I think, in terms of trying to approach fertility preservation. So, these are all things that are actively discussed and trying to mitigate.

Dr. Brown: One thing I'd like to add to that, which is great, there's a really exciting abstract at the meeting about T-cell ALL, and it has to do a lot with this issue of long-term... both short, but primarily long-term toxicity. So in the past, when we've treated children and young adults for T-cell ALL, we've known that the risk of relapse in the spinal fluid, the so-called central nervous system we're seeing as relapse, has been relatively high. And the way we've addressed that in the past has been with cranial radiation, so radiation to the brain as part of upfront treatment. And of all the treatments that we've used in childhood ALL over the years, that's the one that's associated with the most long-term toxicity in terms of growth, hormonal problems, potentially secondary cancers within the brain and IQ, problems with neuro cognition and intelligence, and things like that.

And so, what we just saw presented at ASH was a very large clinical trial that demonstrated that with better chemotherapy, the better use of systemic chemotherapy, we've been able to eliminate cranial radiation in the vast, vast majority of T-cell ALL. And so now, for children and young adults with ALL, over 90% of patients can be treated successfully without any cranial radiation. And that's just a huge advance for patients and particularly for younger patients, for patients with developing brains, for the ones that had the most to lose from the use of cranial radiation. So I just wanted to highlight, that was something I was very excited to see at this meeting.

Lauren Davis: Yeah. Well, no, I appreciate that. And I think this is probably related regarding pediatric leukemia and either you or Dr. Ramaswamy could speak to it, but it seems like there's a difference in gender between boys and girls in that boys are having less favorable outcomes.

Dr. Brown: It's a great question. So, there's two things I would highlight. So, the abstract, there was a very nice abstract presented in an oral presentation of this meeting from Dr. Sumit Gupta from the Children's Oncology Group that looked retrospectively at thousands of pediatric ALL patients, both B-cell and T-cell, it included young adults up to the age of 30 and demonstrating that even with more intensive therapy for boys… So, what we've done for boys and young men in the Children's Oncology Group over the years has been to extend their maintenance so that they're getting in total about three years of therapy compared to just a little bit over two years for girls and young women.

And even with that more intensive therapy, the boys with B-cell ALL seem to have increased risk of primarily of CNS relapse. And so it's really not clear. It's not a huge increased risk but it is noticeable. And it's not completely clear why that is. There are maybe some hormonal differences in why, this is despite the fact that boys and girls don't have different risk features at diagnosis. It's not like the boys can be seen to have more leukemia in their spinal fluid at diagnosis and that would explain why they would have. So those things are all the same and yet the boys do have that different outcomes. So, I think it's a difference that exists but we have yet to figure out why it does exist.

But what's interesting is that we've, in the Children's Oncology Group, at the same time made a change where we're now treating boys and girls with the same duration of maintenance. We've brought back the duration of maintenance for boys to be the same as girls because there's evidence that even though there is this difference, that, that extended duration of maintenance wasn't changing that. And so in order to reduce toxicity, we've been able to reduce the duration of therapy for boys. So, it's a complicated question, Lauren, and I don't think there's a good answer for it yet.

Lauren Davis: I appreciate that. Dr. Carraway, how about in the adult population, is that the same, similar?

Dr. Carraway: Yeah. I would say that many of the studies for this are better done in the COG. I think just the infrastructure that...

Lauren Davis: I'm sorry, the Children's Oncology Group?

Dr. Carraway: Yeah, they just have a more uniform way of studying their populations compared to the adult populations. And so a lot of what happens in the COG studies, we often will extrapolate some of that data to our adult populations. At some institutions, they have not changed the duration of maintenance. So, one of the questions I would have for both Dr. Brown and Dr. Ramaswamy, how well has that been received within the Children's Oncology Group or even in the pediatric oncology practice all told for the treatment of patients in standard of care outside of clinical trials, has that shift really been adopted as a practice? I think the adult oncologists are slower to adopt. Some of the things that the COG group really helps to kind of lead, and this is one such example, I think, measuring MRD at specific time points throughout therapy is another such example, and I see both of you shaking your heads. So I'm going to ask that question to both of you, if that's allowed, Lauren.

Lauren Davis: Go ahead, Dr. Ramaswamy.

Dr. Ramaswamy: So, in terms of I guess the first part in terms of the length of treatment in difference in gender, that's, again, like Dr. Brown mentioned, an active question being asked on the kind of newest generation of ALL trials on both standard risk and high risk. So there's historical data, of course, from prior consortia or preceding COG to support this, but I think now, with kind of our modern intensified back bones and things like that, we're trying to kind of prove the same information, but I think it's just a little bit too early to say. These trials are just kind of in their kind of first year of being open and ongoing.

But it does become a, maybe not to get too controversial an issue, but for patients that are either not enrolled on the study or who are maybe kind of at the tail end of their therapy on

being treated as per kind of the standard of care and what to do in those patients, is it safe to reduce therapy for boys who are not being treated on study to the two years? And as I understand, I can speak for at least my institution and kind of my region, but it's a little bit of a mixed bag in terms of I think what clinicians are doing.

So, I think the best thing is to really kind of, of course, understand this on a trial and in a large population, safety, data and everything. But it hopefully will change our standard practice moving forward.

Dr. Brown: And I'll take a stab at it too. So, it is controversial. My colleague and friend, Dr. Dave Teachey, just published a very nice review in *Blood* where he laid out the case for it and it was kind of as a preemptive move to say we're making this non-randomized change to therapy in the Children's Oncology Group and kind of wanted to get out there in the published literature what that's based on. And I think it makes a great case and it's based primarily on our European colleagues whose outcomes for ALL have been just as good as ours but have not had this [inaudible] boys and girls. And they see the same male-female differences that we see, but it doesn't appear that, that is made any worse by reducing the duration of maintenance in boys.

So, at my institution, we were early adopters of this in the standard of care setting, but I'll tell you that we do it on a case-by-case basis. And this is one thing I'd like, Lauren, for your audience to understand is that we don't make these decisions without discussing with our patients and their families. We sit down and try to weigh the risks and benefits. And I'll tell you that we have male patients who, for whatever reason, have had difficulty with certain phases of their therapy or have had to dose reduce or eliminate certain drugs where we would say, look, we don't feel comfortable for your child in recommending a reduction in the duration of maintenance because part of their therapy has been compromised up until then because of toxicity or other considerations.

Whereas there may be other patients who we feel very comfortable, who have good risk features and have been responding well to treatment, but ultimately, this is a decision that families and patients, with their providers, make together. And even in terms of clinical trials, just because that's an aspect of the clinical trial, it's really up to the patient or family whether they participate in that trial or not. And so these are really decisions that are made as a team and not something that comes as a one way directive from us. That's for sure.

Lauren Davis: Sure. No, that makes a lot of sense and it does seem... I mean, I'm a parent of two young kids so I'm often thinking about how I can be their best advocate. And for Patient Power, we're often trying to help people have better conversations with their doctors. And so we want to help them understand what's actionable, how can you have a really good visit with your clinician the next time you go. And so based on what you were just talking about, are there two bullet points that you hope people will ask? Or how does this bridge the communication gap between parents, young patients and their team of doctors?

Dr. Brown: Yeah. I mean, I think the bullet points would be, Hetty already mentioned at the beginning, to empower families to ask their physicians what diagnostic testing have we done on my child or my leukemia, and are there things we should be looking for in terms of the genomics, just making sure that the state of the art diagnostics are being applied in individual cases. And I think that's probably more relevant on the adult side than the pediatric side where, as Dr. Carraway mentioned, things are a little bit more standardized.

But the second thing is I would empower families to say, hey, we want this to be a team decision making venture. And as much as we defer to you, the physicians, for expertise and for knowing what the data are, we want to feel very much involved when it comes to decisions where the data maybe aren't as clear. And those would be the two bullets that I would throw out there, but I definitely would love to hear what my colleagues have to say.

Dr. Carraway: Yeah. I'm just going to add one thing to that, I really love what you said. What it reminded me of in the adult space is just some of the technology that we have right now and the comments that both you and Dr. Ramaswamy made with regard to testing. And some of this testing is challenged by insurance companies. And so I just want to remind families that clinical trials really can be even doing some of these better technologies and identifying or even profiling the leukemia of the upfront setting.

And so, enrolling in those types of studies or being able to profile leukemia even with a clinical trial may actually be a really important opportunity and not to shy away from clinical trials or just because you're worried that you're going to be wedded to having to do what the clinical trial says. We always encourage people to do that but just like Dr. Brown said, if there comes a point in time where it doesn't make sense to stay on that study because of some individual thing that is relevant to you as a patient, there's flexibility to do what's best, and that's driven by conversations with you and your doctor.

So, it just reminded me to kind of put in that one piece. We are challenged by some of the testing that we would like to do but isn't always supported by insurance companies. And the key to that is, yes, yet. Hopefully, some of the studies that we're talking about even this evening, the whole all told, that data will allow us to say, these are the things that help us know these studies need to be done in the upfront setting when we're diagnosing patients to really help optimize their therapy in the short-term and also in the long-term.

Lauren Davis: Mm-hmm. So I don't want to go too far in the financial toxicity, but it's something that's always top of mind when I'm writing because we're very concerned about paying for treatment, but do you offer like a financial navigator or a social worker at the point of diagnosis so that people can understand how the payment structure will go and what happens when you have a clinical and that it's much more to your benefit to participate?

Dr. Carraway: For our institution, we do, and I'm not going to speak for everybody else, but I do believe that many institutions where patients are enrolled in clinical trials and have these rare diagnoses, there have to be financial navigators that help to understand, is this approved by my insurance company, and/or are these drugs approved by my insurance company before I get started. And some of these targeted therapies that Dr. Brown and Dr. Ramaswamy talked about earlier, we have to be able to get prior authorization for many of these agents before we use them. And so we as a group, it's not just the physicians, we have a team of people that really, we work together to help deliver the best care, and it's not one person, it's a group, inclusive of the financial navigators. But I'll let the others also weigh in.

Dr. Ramaswamy: Yeah. I mean, similar, I think most institutions, particularly large institutions, have many resources, and I can speak for my institution, we have, of course, a social worker who helps navigate both the financial, psychosocial and other needs of families. And then we have kind of a patient financial services that also specifically helps navigate the cost of

treatment or the burden of the cost of treatment on families. And similar hurdles in terms of prior authorizations that have just become I think a reality of our modern treatment. So, yeah. It's definitely something that I think is addressed on so many levels and by many members of the team beyond the clinicians that patients meet.

Lauren Davis: Absolutely. And I just imagine that there's a lot of challenging conversations that you're having with pediatric parents. So, I'm just curious, in terms of clinical trials, this is sort of moving on to the topic of safety, do parents express concern about the safety of participating in a clinical trial? And how do you mitigate those fears?

Dr. Ramaswamy: Yeah. I mean, I think these are all challenging conversations. I think that discussing safety and efficacy and all these various aspects of any trial is a little bit tailored to the specific trial, what's being actually investigated, whether you're talking about a standard of care and the addition of a particular targeted therapy versus a much more novel, less understood therapy. So, absolutely, all these different things are discussed, and really have to be because in order for someone to give their consent for participating. I think it really just depends on what exactly you're trying to recommend for someone's child.

Lauren Davis: Absolutely.

Dr. Brown: And I'll just add. Dr. Ramaswamy just mentioned consent, so regardless of whether we're discussing enrollment in a clinical trial or providing just general non-trial standard cancer care. We go through an informed consent process, which is basically a very detailed discussion of what we perceive as the risk benefit ratio of what we're offering. We certainly don't want to... we do not want to expose any child or any adult to any risks that are over and above what is justified in terms of providing benefit. And yet there's so many things that are unpredictable about what can happen with cancer therapy.

So, it's a very complicated process. I would say it's one of the things that, I imagine I'm speaking for my colleagues as well, that we consider one of the most, if not the most important part of our job is the ability to really explain that risk benefit ratio in a way that families can understand and that they can provide. The whole purpose of the informed consent is that they provide that consent after being informed and being informed in a way that they truly can understand. And it's a big part of what we do.

Lauren Davis: That makes a lot of sense. Again, as a parent, you're making a lot of difficult decisions for your kids, and so with cancer, it just ups the level of concern. So, we've covered so much great stuff, but I do want to touch on COVID briefly before we go. Virtual care has made such a... we sort of have to move into a virtual care situation in a lot of these cases, and so I'm just wondering if this has changed your day-to-day practice at all, and how that is influencing your ability to do your day-to-day work?

Dr. Carraway: In the adult population, here at the Cleveland Clinic, it definitely has impacted the way that we manage and we see patients. We definitely have transitioned to a plan of care where if patients need to come in for their chemotherapy, we have a system and an algorithm set up so that they can come in to the clinic and have access to care that's safe and an environment that's safe and well-controlled. For patients that don't need to clinically be seen or be receiving transfusions or chemotherapy, the infrastructure we have to do virtual visits is

fantastic, but it does mean that patients are sometimes getting labs done locally and then we get faxed those labs and we talk about that data in real-time.

So, the logistics of setting up such meetings takes a lot of time, and it takes, again, I'm just going to reflect back, the team that we have that supports us, inclusive of getting those labs done, getting those data, communicating with patients, whether or not they're coming in or doing a virtual visit, the logistics to do all of that, it's just so much more than what we've ever done in terms of setting up appointments. And then if things need to get rescheduled for whatever reason, it's just more upfront work and communication is more important than ever.

I think pediatric oncologists probably are also struggling with how are you communicating with patients. For my older patients, they're not so savvy with their phone, with their computer, and I can't do a 15-minute Zoom video with them because usually, the first 15 minutes, I'm helping to navigate myself and them through the whole Zoom situation. We are getting better at it as a community, as a physician and working with my patients. I will tell you, they and I are happier. I like seeing them in their environment. My ability to communicate with them and see them in their own comfort zone, I think it's built relationships in a way that is very different.

And I think COVID, it's changed the way that we're managing our inpatient. So I'm going to now transition. I am dealing with patients on my leukemia service that have COVID. I'm dealing with loved ones that want to visit their family members that are affected by cancer and also having COVID. And we're in situations where it's just unprecedented. So we're doing our best to allow for visits, but we have to do that in a safe way and it's really distanced the communication in ways where we're talking more over the phone and over the computer and families just can't be at the bedside all the time.

And it is taking a toll on the healthcare community. We're doing our best, but it has been very difficult, and it's changed the face of what we do day-to-day. Nonetheless, I think I will speak for the colleagues that I work with and the colleagues on the call today, it is an honor. We are trained to kind of be at the forefront at a time like this. Now, more than ever, it's not going to stop us from treating these cancers in a way that is required. We can't back down from treating leukemia. This is also an equally deadly disease and we need to both, control whatever infections are in front of us and move forward with chemo. So that was a long-winded answer. I'm sorry, but.

Lauren Davis: No, I appreciate it. I mean, everyone's struggling. And I'm just curious, from the New York perspective, Dr. Ramaswamy, I mean, New York got hit so hard early on, how did that influence your day-to-day work? And did you get pulled away to just handle COVID patients or were you able to just maintain what you normally do?

Dr. Ramaswamy: Yeah. I mean, for my department, at least in our center, most clinicians were not pulled away and redeployed to other units. We're very fortunate in that way. It did change significantly in the way we practice, at least during the height of the pandemic here, moving to remote work and the telemedicine, as you mentioned, it really shifted very quickly, our ability to do telemedicine visits, it was slowly happening and then all of a sudden, trying to figure it out in a span of a few weeks. So it was a huge for everybody, healthcare providers, patients, and we're still trying to figure out which platforms to use, which are best, and I think we've started to iron out a lot of those technical issues.

But I think it really just also allows your people to have access to their doctors who, like Dr. Carraway's mentioned, who maybe don't need to, for certain visits, need to physically be there. I mean, of course, we all want to see our patients and do our exams and things like that, but there are some visits where it really can benefit a family or a child to not have to, at least for us, drive in to the city and maybe there are things that we can manage virtually. And so I think it's really helped from that perspective.

I've also been doing a bit more consults and second opinions, and I think it's really allowed for access to families, again, that potentially aren't able to come in and to be able to at least meet them and discuss treatment. So, I think it's definitely helped. It's complimented our practice. The tricky thing with leukemia treatment is that [inaudible] kind of going back to active treatments and new patients, it's such a challenging treatment, particularly in the beginning, in terms of intensity and potential risk for infections.

And so, fortunately, we didn't have to change the way we practice, the medications we use, the treatment protocols that we use, but there were certain things we did adjust in terms of some of our infection preventative guidelines and things like that to try to help families kind of navigate this really challenging time, both from a new cancer diagnosis, but then also in the context of a pandemic. So, it was a lot of transitioning and adjusting for everybody.

Lauren Davis: Yeah, absolutely. And I think, just to wrap up on a note of hope, 2020 has been very challenging for everyone in every which way, but I've really seen people rise to the occasion. And so, I just wonder if you each have one thought for going into 2021 and 2022 that gives you hope in terms of what you've seen at ASH over the last few days and what you're seeing in your clinical care and in your research.

Dr. Carraway: Well, I'm happy to lead off and just say, the technologies that we've talked about in terms of detecting and profiling, so first of all, profiling leukemias, trying to figure out what's the best therapy for patients in the upfront setting, which patients need to stay on intensive therapy, what are the complimentary additional agents that we may be able to offer patients, and are there techniques that allow us to say these patients don't need therapy for prolonged durations of time with regard to reducing toxicities. I think the novel therapies that are emerging are really exciting.

And even though 2020 has been a challenging year, I agree, it has united our teams in ways that we probably wouldn't have been able to do in as quick a manner as we did. And I think that has been really additive and complimentary, as Dr. Ramaswamy said, to the way that we manage patients and meeting them where they are, even at their home, even if it's virtually, we're now able to connect in ways like never before. And my hope is that people will continue to pursue vaccines. I think I've had more of my patients be compliant, even with the flu vaccine this year, as a result of what we've experienced. And I'll leave it to my other colleagues to add to that.

Dr. Brown: I'll say, I think that one of the incredible benefits of what we've been through in the last year is just recognition that we can deliver high quality medicine with a lot more flexibility than we thought was possible. And I think that's going to do nothing but benefit patients and providers down the road. I think it's opened up a whole new world in terms of how to optimally

deliver the care that we deliver, and it kind of... I think that flexibility is something that I hope that we continue because I think it's great for patients, it's great for us.

The other I'll say is that we have not stopped innovating as a field. And this meeting has really brought that out, that there's been no slowdown in the progress that's being made and the next few years are just going to be amazing in ALL. I mean, I can't emphasize how this disease area is one of the disease areas that's changing the fastest for the better. And the number of options that are available for treating patients, particularly those that don't have good responses to our standard therapies, it's just unbelievable.

The way our practice has changed, the technologies, the different treatments that are available, and to see those start to move upfront, into upfront therapy, that's, to me, what the next few years is going to be so exciting to see is that despite how incredibly effective chemotherapy has been over the past 50 or 60 years in transforming this disease from one that was completely incurable to curable majority of cases, even in adults now, to see us being able to further improve those cure rates but with less toxicity using immunotherapy is going to be really exciting to see.

Dr. Ramaswamy: Yeah. And I think for me, I just want to highlight that, again, despite everything that's gone on in 2020, I think medical education, research and clinical trials have continued and are continuing to open, continuing to enroll, continuing to have meetings like ASH where people can meet virtually and still present and have these conversations and really kind of move things forward, so it's been very exciting to see how resilient everybody has been really hopeful that this continues.

And to echo what Dr. Brown mentioned is just that I think what's most exciting for me is, as the more junior person on this panel, but to see that what we consider standard therapy or standard treatment, I think that's going to be the biggest place where we may see change, what is standard therapy anymore, what that looks like, again, whether it's chemotherapy, how much chemotherapy combining with novel therapy. So, it's just an exciting time, I think, to be able to take care of the patients that we are privileged to take care of.

Lauren Davis: Well, it’s been a pleasure having you on and we at Patient Power look forward to sharing your latest findings with our audience. And to our audience, be sure to subscribe to our newsletter so you’re always in the know. You can follow Patient Power on Facebook, Twitter or Instagram. Remember, knowledge can be the best medicine of all.