Welcome everyone to grand Rams.

We have two sets of speakers today with two quite different topics, so our first presentation is going to be focused on tissue donation and the rapid autopsy program that’s developing.

And and we welcome Harry Sanchez, who’s an assistant professor of pathology, and as well as Marcella Destasio, who is an instructor in pathology.

Doctor Sanchez is currently developing the Yale or Doctor Sanchez and doctor this size there.
Currently developing the Yale Tissue Donation Program, which we hope will enhance both basic and translational research at the school. When fully launched, the program will enable patients with late stage cancer to consent to donate tissue for research, as well as the component that is about rapid autopsy, where patients can donate tissue in the context of a rapid autopsy program or a warm autopsy program so the tissue can be taken and used.
for a variety of different Purposes in. In my experience, many, many different labs and it’s one of the big advantages of this somewhat difficult to approach. So without further ado, I’m gonna ask Harry this morning and we’ll go from there. OK, I’m gonna share my screen. And hopefully you can see that OK. Yeah, you just need to be in presentation mode. that you go.
OK, well thank you. Thank you very much. Doctor Weiner for the introduction and thank you very much for having us. As you said, we'd like to talk to you about the rapid autopsy program, which is really, there's nothing technologically new about the approach, but it is a way to get patients involved in the basic science aspect of clinical research, and it's way to coordinate our existing resources so that we can get. You know, sort of address the problem of getting high quality and sufficient quantity of tissue. And so our objective said today are
to talk to you a little bit about this approach and its advantages for patients and clinical researchers. And we do feel they were advantages for both.

To talk to you a little bit about rapid autopsy programs that already exist. And finally, to ask for your input and to ask for your participation, so that we’re still putting this together. Those of you with thoughts on how we could do this better, we’d love to hear them, and so sorry to do that. And we’ll just. We’ll go with that.
The outline I’d like to put the problem sort of in context, and talk about the problem of sort of human tissue for research from the patient and research scientist perspective, and then talk to a little bit about how I think the rapid autopsy approach addresses some of those things. It’s it’s not a solution for everything, but I think it is a very useful addition to what’s already in place. So problems for patients in the general public or, you know, sort of the subheading why you might not want if you are a patient to participate in clinical research.
And I think this goes back to the problem that has been since the beginning of sort of. Sort of formal medical research once people realized physicians in the 1300s that it was hard to study function without understanding form, people started studying anatomy, at the very beginning it was a small enough enterprise that only the most marginal people executed. Criminals were what was needed and that was enough, but as interest spread success became, you know,
sort of more universal and the approach became adopted. The supply of bodies for a study was far short of the legitimate demand, and so it created this sort of underground network of supply and people resorted to grave robbery, and when that wasn’t enough, eventually in Edinburgh murder to come by tissue and that led to the Anatomy Act of 1832 and the reason that I include this is that I think the Anatomy Act which addressed this problem beautifully states the problem. Basically, you can’t know the causes and nature
00:04:50.554 --> 00:04:52.748 of disease without studying tissue,

00:04:52.748 --> 00:04:55.322 but the supply of tissue is

00:04:55.322 --> 00:04:57.347 insufficient and that can drive

00:04:57.347 --> 00:04:59.902 people to do very ill advised things,

00:04:59.910 --> 00:05:02.136 and that’s not a problem that

00:05:02.136 --> 00:05:04.190 went away in the 1800s.

00:05:04.190 --> 00:05:05.662 So on the left here you can see

00:05:05.662 --> 00:05:07.701 this is an image from the Tuskegee

00:05:07.701 --> 00:05:08.349 syphilis experiments,

00:05:08.350 --> 00:05:11.374 which are rather the study that started

00:05:11.374 --> 00:05:14.690 in 1932 and went on for the next 40 years,

00:05:14.690 --> 00:05:16.712 400 unwitting.

00:05:16.712 --> 00:05:21.332 Volunteers for this program and on

00:05:21.332 --> 00:05:23.334 the right is the front cover from

00:05:23.334 --> 00:05:25.770 the immortal life of Henrietta, Lex.
She was a woman in her early 30s who developed cervical cancer, went to Johns Hopkins for treatment and tissue from her cervical cancer was used to create a very successful cell line. The heel of cells, but that was done completely without her knowledge or her consent. And so while all of these things may have had. Good intentions behind them and developed some results. The result is that human. Sort of tissue for use of medical research has this sort of checkered
and sort of fraud. Past that, I think generates the sort of suspicion that still with us today. Even when we try to do things as a profession that are for the public good. No, there are still plenty of people who want to participate in research and do. I'd like to say that I'm going to talk mostly about participating in the earliest phases of sort of basic science research, and that is something that's very difficult to do as a patient or just a member of the general public.
Research is extraordinarily expensive. I think you know the average NIH award is something on the order of half $1,000,000. And it’s not the sort of thing that most of us can put a dent in individually, but you can do work that helps you know with sort of organizations and things, but you can’t really foster. You can, however, donate tissue. The problem with tissue donation as it currently exists is one of coordination so that people do occasionally come to us and say that their next of kin would like to donate.
Their body to the medical school. Or for research, and the problem is that it's sometimes hard on short notice to put together somebody who will receive that really generous gift.

And I'm going to turn this over here to Marco, or rather to Marcello. So you know if you wanna study human disease, you have a few few options.
You need cells of some kind and you need tools to study them with and so there are a few model systems out there. Actually, I shouldn’t say a few. There are many many model systems out there, including cell culture and models, surgical specimens and standard hospital autopsies, all of which are are fairly readily available but have their own limitations next slide so you know with. Certain tissue sources, like cell culture, you know cell culture is an incomplete system. The tissue is not intact and the cells are grown in media that may.
Have you know, may have a lot of factors in it, but they are not embedded in their natural environment, so it makes it difficult to model. Animal models of course have contributed tremendously to our understanding of biology, but there are cross species. Differences and I’ll just highlight a couple of them here. RB Newton Mice developed pituitary adenomas as opposed to retinoblastoma. Essentially a lead from any type of mutation in a mouse,
produces sarcomas as opposed to the often you know, mucosal carcinoma is typical of, you know, the human patient would leave from any and in terms of metastasis, you know there are models that produce metastases? In miles, but spontaneous metastases are much more rare in mice than they are in human. So if you want to study human, it's best to actually look at human tissue. Ohh yeah, next slide. So with human tissue we have a few options.
but there is limited availability of certain tissues, and the tissue that is available must be retained and examined by a pathologist for diagnostic purposes before it can be released for research. I’m a neuropathologist and my research is in central nervous system diseases and of course brain tissue is extremely precious and surgically. Surgical removal is minimal as possible to minimize morbidity. So we have very limited access to that kind of tissue. And then there are standard.
hospital autopsies which, while there is ample tissue available and often, you know, consent is given the status of the tissue is often the problem here, so with longer postmortem intervals there’s degradation that occurs and also you know the standard autopsy service on the hospital you know accepts. Patients from a wide variety of sources, some of which are better documented than others, and so you know one thing that the rapid autopsy program aims to do is to recruit.
You know donors who are well known to clinical services and their you know, clinical researchers here at Yale. So just to quickly highlight a couple of effects of postmortem interval, if you look at these Histology images here on the right side, this was a nice study where they used surgical specimens and then basically just let them sit around for a few hours and see what happened to the tissue and you can see that as the postmortem interval changes. I just I really want you to appreciate that.
there are changes from an immediately resected specimen on the far left to the.

and essentially what’s happening there. 

There’s breakdown of membrane integrity. 

Proteins are denaturing, and you’re basically losing the histologic structure. 

The histone morphology of the tissue which can be limiting for our understanding of microscopic anatomy. 

In that case there’s also molecular changes that occur. 

There’s a lot of rhetoric around RNA. 

And post mortem interval is related to RNA. 

can attest to the fact that grant reviewers
get very very touchy when it comes to RNA. I think it’s actually a little bit overblown. The total quantity of RNA actually doesn’t decrease that much, but there’s actually more insidious problem when it comes to setting RNA and postmortem tissue, which is that certain RNA’s actually decrease or increase right? Because transcription, you know your tissues don’t necessarily know that your brain is stopped functioning or that your heart has stopped beating immediately, so certain transcripts
actually increase after death,
NOTE Confidence: 0.849801515
and certain transcripts decrease after death,
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and so that can lead to substantial
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unquantifiable bias in your study,
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which I think is actually a more significant
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problem than total RNA integrity.
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And then for the next slide there
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are also effects on proteins.
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This was a nice study that was done
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on cerebral spinal fluid and looking
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at the effect of protein aggregation.
NOTE Confidence: 0.849801515
Actually in the CSF.
NOTE Confidence: 0.849801515
Overtime after death.
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And so again,
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these are basically deviations
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from the normal Physiology of life
that are occurring and therefore less representative of the state of your system during life. So these are all effects that we would like to minimize. 

With the rapid autopsy program. Another limitation. With currently available tissue is just in sampling surgical specimens. For example, you know we have to. As I mentioned, we have to minimize morbidity. So in the central nervous system, you know that you can only take so much. So this picture just shows a composite
fMRI image of eloquent cortex.

In other words, brain that you still need in your head, and so therefore is inaccessible to interested researchers, and so.

Of course this stuff is extremely valuable. For understanding the tumor environment, but we are unable to study it using standard surgical specimens.

And that’s important. It’s important to have a wide breadth of tissue to study both in space and in time, because we need to understand tumor heterogeneity within the tumor.
There are multiple clones within a tumor, some of which give rise to metastasis.

We see molecular evolution. We see phenotypic evolution in tumors. Within the primary tumor and we also see a selection for certain features in metastasis, so access to all of this tissue from multiple sites. Multiple regions of the tumors. Is all essential for understanding the complete, you know pathobiology of tumor. Genesis and metastasis formation. So so thank you. So what
I'd like to talk to you about next is just some of the mechanics of what rapid autopsies actually are. And how they differ from a standard autopsy and then the short answer is that rapid autopsies are not technically autopsies. They are anatomic gifts, so an autopsy is a diagnostic procedure performed on the remains of, you know, a decedent and and. Permission can only be given by the next of kin. The legal next of kin. I cannot legally give permission in life for my own autopsy. That permission doesn’t survive my death,
NOTE Confidence: 0.8464468156
00:15:34.090 --> 00:15:34.537 however.
NOTE Confidence: 0.8464468156
00:15:34.537 --> 00:15:38.560 I can give and this is by virtue of
NOTE Confidence: 0.8464468156
00:15:38.670 --> 00:15:41.866 some universal anatomic gift act
NOTE Confidence: 0.8464468156
00:15:41.866 --> 00:15:43.250 legislation that’s been adopted
NOTE Confidence: 0.8464468156
00:15:43.250 --> 00:15:45.520 by most states in this country.
NOTE Confidence: 0.8464468156
00:15:45.520 --> 00:15:48.568 I can in life give permission for an
NOTE Confidence: 0.8464468156
00:15:48.568 --> 00:15:50.973 anatomical gift of part or all of my
NOTE Confidence: 0.8464468156
00:15:50.973 --> 00:15:53.040 body for the purposes of transplantation,
NOTE Confidence: 0.8464468156
00:15:53.040 --> 00:15:54.300 therapy or research,
NOTE Confidence: 0.8464468156
00:15:54.300 --> 00:15:57.240 and this is from the Connecticut statute
NOTE Confidence: 0.8464468156
00:15:57.315 --> 00:15:59.877 and the important thing about this
NOTE Confidence: 0.8464468156
00:15:59.877 --> 00:16:02.280 statute which governs organ donation,
NOTE Confidence: 0.8464468156
00:16:02.280 --> 00:16:06.410 is that this permission survives my death.
NOTE Confidence: 0.8464468156
00:16:06.410 --> 00:16:08.870 And cannot be.
NOTE Confidence: 0.8464468156
00:16:08.870 --> 00:16:10.490 Sort of rescinded or modified
NOTE Confidence: 0.8464468156
by my next of Kent,

so it’s it’s a durable gift and it

can be made not only for as I said,

transplantation,

but to a hospital or a medical school

for research and education purposes.

So this is what covers these things.

As Marcelo pointed out,

the delay in standard autopsies

is the thing that you know,

renders the tissue less useful.

And we’ve looked at our own

postmortem intervals over.

2/3 of our cases are longer than

24 hours between time of death
and start of what typsy and most 
of that delay is due to consent.
which are important but take place after
death and and sort of slow things down.
So how does the actual process work?
So what we propose is that research
investigators contact us when
they have sort of Yale approved
Yale IRB approved protocols,
file them with us and and talk
to us about the requirements for
tissue collection and storage.
The clinicians and researchers are identify
patients and you already have research,
you know, sort of relationships with them, so that makes that easier that might be interested, and if they are interested, walk through this very transparent and very thorough consent process. If the consent is given, we retain a copy of that at our program and provide contact information with the family. When the donor dies, we were contacted either by the family or the facility. The permission you know we contact next of kin and then we assemble our staff as quickly as possible within an hour,
certainly.
And we hope that we'll be able to get to the actual you know, hopefully no more than six and hopefully less.
The idea is that we collect this according to protocol, save it in the appropriate way, and then hand it off at the first possible chance to the research lab who recruited. This patient, and so we're not a tissue bank. We are just sort of there to smooth things over.
I'll turn this back over to Marcella.

There are a whole host of modern technologies that have really come into their own. Platforms that allow us to just gather huge amounts of data from, relatively small but high quality fragments of tissue, and so all of these highlighted...
here are certainly on the table
they’ve been performed in human tissue and and validated there are.
Yeah there. There are too many technologies to sort of enumerate,
but a large number of them.
Really yield the highest quality of data.
And and by quality I mean high reliability information which is basically it’s important to combat these issues of of bias and and being misled by artifactual changes in the tissue, which with with these huge data sets is very easy to get sort of LED down the garden path by those kinds of artifacts.
And so the quality of what you put in are really influences the value of the information that you get out of these these. High throughput, big data, new technologies, and so the rapid autopsy, again, will we? We aim for that to be sort of the input to many different types of experiments. My ability, yes. So these are the limitations. Again, the things that we talked about you know post mortem, interval, time, temperature, all these things can affect quality of tissue. And of course clinical factors.
in that the information about the patient having a basically a pipeline in good communication between the sort of basic science labs, the clinical researchers and the clinical teams treating the patients. You know closing that loop, ideally through the rapid autopsy program, where we can disseminate all this information, will again, you get the most out of the out gifts that the patients donate. So just very quickly a couple of results.
A couple of results from similar programs around the country. Johns Hopkins has a pretty mature program. They've had a segment of it, very much focused on prostate cancer, and they've shown a lot of really interesting things about, you know, clonal evolution and prostate cancer, and how that contributes to metastasis in different forms and the androgen insensitive and the androgen sensitive forms. Dana Farber has a very advanced program. This is just one example of a breast.
00:21:46.526 --> 00:21:49.474 you know the the amount of diversity
00:21:49.474 --> 00:21:51.610 in breast tumor metastasis.
00:21:51.610 --> 00:21:53.381 But there’s there’s a lot of other
00:21:53.381 --> 00:21:55.109 research that’s come out of that program.
00:21:55.110 --> 00:21:57.603 If we go to the next slide just a
00:22:00.187 --> 00:22:02.738 couple more of the NIH actually runs a
00:22:02.740 --> 00:22:04.805 And this you know again they have.
00:22:04.810 --> 00:22:06.566 They had excellent records.
00:22:06.566 --> 00:22:09.713 This was a really exceptional case study
00:22:09.713 --> 00:22:12.347 and that they had tissue collected
00:22:12.347 --> 00:22:14.799 surgically during the patient’s life,
00:22:14.800 --> 00:22:16.630 both of primary tumor and
00:22:18.100 --> 00:22:20.356 But also then they had the rapid autopsy
at the end of the patient’s life, which you know together comprise just a tremendously valuable data set. And finally the the live on New York. That’s it. That’s actually a a transplant. Service and Columbia has partnered with the transplant service to sort of simultaneously perform warm autopsy on consented patients, and that’s enabled them to do all kinds of really innovative immunological studies. And this is just one example, looking at natural killer cell interactions and in their development in different tissues.
So just quickly to go through some of the programs that exist. There’s this is not a complete list, but there’s somewhere I think between you know, a dozen and 15 of these programs, and I list them here in sort of order of proximity to us. And I point out that what these programs all have in common is that they are in areas that are metropolitan, have large patient populations, and they’re all based at academic hospitals with national reputations, and they all have a critical mass of NIH.
00:23:24.279 --> 00:23:26.139 funded clinical research scientists.
NOTE Confidence: 0.91323373
00:23:26.140 --> 00:23:28.596 And I think we have all of those.
NOTE Confidence: 0.91323373
00:23:28.600 --> 00:23:29.896 All of those factors in place.
NOTE Confidence: 0.91323373
00:23:29.900 --> 00:23:32.474 And I think we are in a position to
NOTE Confidence: 0.91323373
00:23:32.474 --> 00:23:34.969 set up a successful program here.
NOTE Confidence: 0.91323373
00:23:34.970 --> 00:23:36.428 And I’ll just turn that over
NOTE Confidence: 0.91323373
00:23:36.428 --> 00:23:37.600 to Marcelo to finish up.
NOTE Confidence: 0.760643895714286
00:23:37.810 --> 00:23:40.470 So finally, yeah, just just to summarize,
NOTE Confidence: 0.760643895714286
00:23:40.470 --> 00:23:44.106 you know the the patients are offered an
NOTE Confidence: 0.760643895714286
00:23:44.106 --> 00:23:47.816 opportunity to to make a very meaningful.
NOTE Confidence: 0.760643895714286
00:23:47.820 --> 00:23:50.610 Contribution to medical research that really
NOTE Confidence: 0.760643895714286
00:23:50.610 --> 00:23:53.750 could not be replaced by anything else.
NOTE Confidence: 0.760643895714286
00:23:53.750 --> 00:23:56.726 This kind of program promotes transparency
NOTE Confidence: 0.760643895714286
00:23:56.730 --> 00:23:59.991 and preserves autonomy of the donor and
NOTE Confidence: 0.760643895714286
00:23:59.991 --> 00:24:03.679 really puts the the donor at the
NOTE Confidence: 0.760643895714286
00:24:03.679 --> 00:24:07.671 center of of a very important line of
research into their disease. Researchers I, you know, I spent a bunch of time on telling you about different factors and tissue quality. Essentially, that’s the core good quality tissue that’s well documented and part of a sort of coordinated research team that includes the clinicians, the patient, the researcher and the. The rapid autopsy program. So we I don’t know Harry. Do you want to maybe take this one so in trying to put this together, we’ve? We’ve looked for input from a bunch of different sources and we’ve had long
00:24:51.119 --> 00:24:53.746 talks with the the folks at MSK and
NOTE Confidence: 0.7529682775
00:24:53.746 --> 00:24:55.446 Johns Hopkins about their program,
NOTE Confidence: 0.7529682775
00:24:55.450 --> 00:24:57.772 and we’ve had some really great
NOTE Confidence: 0.7529682775
00:24:57.772 --> 00:24:59.872 conversations with the Yale Cancer
NOTE Confidence: 0.7529682775
00:24:59.872 --> 00:25:02.267 Centers patient and Family Advocacy
NOTE Confidence: 0.7529682775
00:25:02.267 --> 00:25:04.650 council and Community Advisory Board.
NOTE Confidence: 0.7529682775
00:25:04.650 --> 00:25:09.538 So we’ve had, you know,
NOTE Confidence: 0.7529682775
00:25:09.540 --> 00:25:12.000 RAP input what we’re looking for.
NOTE Confidence: 0.7529682775
00:25:12.000 --> 00:25:14.264 Hopefully today is the input of some of
NOTE Confidence: 0.7529682775
00:25:14.264 --> 00:25:16.588 our own clinical research community.
NOTE Confidence: 0.899056583333333
00:25:18.820 --> 00:25:20.675 And you know, we’d like to invite
NOTE Confidence: 0.899056583333333
00:25:20.675 --> 00:25:23.006 you to weigh in and ask questions
NOTE Confidence: 0.899056583333333
00:25:23.006 --> 00:25:24.478 and and hopefully participate.
NOTE Confidence: 0.899056583333333
00:25:24.480 --> 00:25:26.016 And and this is, you know,
NOTE Confidence: 0.899056583333333
00:25:26.020 --> 00:25:28.378 where we can reach where you can reach us.
We have the beginnings of a website and here our emails and be happy to take any questions you might have.

That’s great, thank you very much.

Let’s just see if there in the chat.

So a question that was asked how do you recruit connect with patients and families?

I know that body donation is a very meaningful gift and legacy for many patients and their families.

How can frontline clinical colleagues help support your work?

And I’ll just add to that a bit which is, you know, you talked about the fact that there
was not a bank but that you would be
essentially delivering tissue to a lab.
I think it’s often going to be a program.
Or an individual clinician who
can do the recruiting,
and I don’t think it’s going to be
a lab per se that that does that.
Maybe your issues?
So the different hospitals
use different models.
So MSK, I think their program takes consent.
Johns Hopkins, the clinicians take consent
and the ideal situation is to have a
clinician who is also doing research.
But you’re absolutely right.
I think it’s really the clinical carotene that has to approach the patient, and they have to identify people who they think might be interested and might be willing to. To broach the subject.

If a second question, if a patient dies at home, how is it that the patient’s body reaches Yale? In those cases what we have are?

We have a contract with an area Funeral Home that has agreed, obviously for a fee, you know to
make you know that transport to you. And finally, would you prioritize certain disease areas for patient recruitment in the initial rollout or would be up to each and every clinical research group? And again, I'll add to that and say I think it would be really helpful if we could pilot this in a few areas. Getting those that you know, the clinic clinical people in those areas interested in invested. Do you have thoughts about that though? Yeah, more chill. Do you want to take that? Sure, so I think we have a lot of interest from neurology.
Obviously, you know this is one of the main avenues for for central nervous system tissue,

and so we have a number of clinicians and research labs,

particularly in neurodegeneration, but also stroke.

And I think we know. Again, part of our purpose talking to this group.

Is we, you know,

we think that the Cancer Center you know would be an excellent.

Basically plays for us to connect,
00:28:37.884 --> 00:28:39.718 with all the the the the research
NOTE Confidence: 0.894028086666667
00:28:39.718 --> 00:28:41.660 that’s happening in the labs you know,
NOTE Confidence: 0.894028086666667
00:28:41.660 --> 00:28:43.140 run by Cancer Center,
NOTE Confidence: 0.894028086666667
00:28:43.140 --> 00:28:45.800 Pi and and the clinical teams here.
NOTE Confidence: 0.894028086666667
00:28:45.800 --> 00:28:48.272 So I I think essentially these two areas
NOTE Confidence: 0.894028086666667
00:28:48.272 --> 00:28:50.289 are probably our first two rollouts.
NOTE Confidence: 0.855734105714286
00:28:51.740 --> 00:28:55.468 I can tell you that our lead neuro
NOTE Confidence: 0.855734105714286
00:28:55.468 --> 00:28:57.751 oncologist has already jumped in
NOTE Confidence: 0.855734105714286
00:28:57.751 --> 00:29:01.350 to say that he is happy to pilot.
NOTE Confidence: 0.855734105714286
00:29:01.350 --> 00:29:03.039 Right, that’s wonderful.
NOTE Confidence: 0.855734105714286
00:29:03.040 --> 00:29:06.080 Thank you, thank you Antonia.
NOTE Confidence: 0.855734105714286
00:29:06.080 --> 00:29:11.560 Monica, do you have a presentation yourself
NOTE Confidence: 0.855734105714286
00:29:11.560 --> 00:29:17.398 or you’re going to use other people?
NOTE Confidence: 0.855734105714286
00:29:17.400 --> 00:29:22.026 You do OK, so we’re going to hear 3
presentations from Monica Fredkin and from Christina Matusek and from Mandeep Smith that will be presented at the Oncology Nursing Society and. With that I welcome them all.

I’m Monica Fredkin and I’m here sharing a presentation that we did in the Oncology Nursing Society Congress last week and I’m going to spend a few minutes talking about the ambulatory oncology transformation, specifically around one working group and I’m here. There were multiple people that were involved.
in this work and Chang Jeremy Corbyn, Mansky and Connie Angle King is a consultant and then I will hand. Give a high level of the work that we've done, and then I'll Handed over to Christina Matusik and Mandeep Smith were the leads of one of the work groups that have patient visit readiness to kind of show how we took this ambulatory work and put it into real practice. So with that, how did we get started at all this work and. Back in March of 2020 and April of 2020, we really had to.
We provided ambulatory care. We consolidated clinics. We moved all of the New Haven teams and clinics out to the network to different sites. To provide additional capacity for inpatient, we were forced to do this. There was an opportunity to relook at how we provided ambulatory care, and so we Kim’s luster, Lori Pickens, Kevin Billingsley. At the time said, how can we create a new normal and make one smile and really make this a two point?
You know,

so there was an ambulatory transformation steering group that was started and it really looked at the ambulatory flows from before the patient arrived all the way through. So when they left and there was a steering committee and within that steering committee there were six different subgroups. The subgroups were around facility and environment patient access technology, staff and staffing and then communication. And the final one in Orange is really the care delivery workflow subgroup.
that we’re going to talk a little bit about today to share what we’ve done, but each one of these groups are, as you know, we’re all interconnected. So how we do this really had to be done thoughtfully and coordinated. So the approach to this is that we had to do have a multiple steps in order to even understand where we were, and I’m going to go into the detail of the elements on this slide into future slides, but we had a five step process on what we approached this work.
00:32:23.838 --> 00:32:26.244 and the first thing that we had to
NOTE Confidence: 0.83835739625
00:32:26.244 --> 00:32:27.995 do is we had to kind of understand
NOTE Confidence: 0.83835739625
00:32:27.995 --> 00:32:29.710 we had to understand where we were,
NOTE Confidence: 0.83835739625
00:32:29.710 --> 00:32:31.390 what was our current state,
NOTE Confidence: 0.83835739625
00:32:31.390 --> 00:32:33.532 and in order to do this and we wanted
NOTE Confidence: 0.83835739625
00:32:33.532 --> 00:32:35.436 to make sure that we represented
NOTE Confidence: 0.83835739625
00:32:35.436 --> 00:32:37.760 all the areas across the ambulatory.
NOTE Confidence: 0.83835739625
00:32:37.760 --> 00:32:40.784 Enterprise, so a key survey was created.
NOTE Confidence: 0.83835739625
00:32:40.790 --> 00:32:43.038 We obtained information around
NOTE Confidence: 0.83835739625
00:32:43.038 --> 00:32:45.912 role where people worked as well
NOTE Confidence: 0.83835739625
00:32:45.912 --> 00:32:47.467 as what team they were.
NOTE Confidence: 0.83835739625
00:32:47.470 --> 00:32:49.420 They were aligned with and
NOTE Confidence: 0.83835739625
00:32:49.420 --> 00:32:51.370 there was a structured and
NOTE Confidence: 0.898520772352941
00:32:51.450 --> 00:32:53.710 unstructured questions we we wanted
NOTE Confidence: 0.898520772352941
00:32:53.710 --> 00:32:56.468 to know open comments which provided
NOTE Confidence: 0.898520772352941
00:32:56.468 --> 00:32:58.778 a significant amount of information
and when you think about analyzing and aggregating the data we had, you know, open-ended questions can provide, you know a whole level. Of analysis that was created. The workflows that were not included because they were part of other working groups was the supportive care services and the access call management and intake was all part of other working groups. So we really focused on the clinical flow of patients. The survey had was open for eight days. We had almost 200 people respond, which shows that there was a
real opportunity and engagement.

From all different roles and disciplines.

So we had a nice mix of responses,

26% from physicians,

32% from nursing, but we had pharmacy.

We had lab.

We had access staff research, everyone.

We had multiple people that you know roles

So 2/3 were medical oncology,

but we had a nice representation of radiation

And what’s not on here is that we

had a 5050 split of new like the

New Haven teams and the network.

So we really did get a great
representation of the information

that we were looking for.

So once we took that,

we spent a tremendous amount of time

aggregating and analyzing the data.

But there were ten common.

Workflows that came up as the

opportunities for improvement and

what a group of us did is there we

priority ranked them and there were

about 70 plus people that that were

involved in this and the priority

rank also needed to intersect

with the different working groups

that were also functioning so.
Well, this is a high level of the 10 different groups we had to create different subgroups within that teams. So there were three different COVID related projects and we deployed them to the COVID team. There was a working group already that could handle and manage those groups but the non COVID related really fell into four different buckets that you can see here. We had more than 70 participants, physicians, and staff of all different roles,
as well as sites that were represented in these different groups and for clinic flow. We had three different working groups that are still actively working and meeting and right now visit type criteria was a proactive approach on how we could identify patients that would be televisit appropriate that would help minimize switching visits. Last minute and being able to designate those visit types. The patient visit readiness which Mandeep and Christina will talk about is really also about the patient and physician having the
optimal visit and what can be done
beforehand and after to ensure that
those patients experience that visit
and the checkout process is also an
active working group around that
communication of what needs to be
done following the visit to ensure
that things are communicated.
And followed through on
whether it’s referrals,
orders and imaging that have
to be done or next visits.
Infusion flow was really around labs
and advanced release of chemotherapy,
but at the same time there has been
an initiative that we’re implementing
lean toss across the the ambulatory areas where infusion is done.

So we are working on lean tasks right now and then.

Patient education was really around.

How can we utilize and leverage technology to provide patient and family education, especially when there’s limited patients and family members that are allowed in clinic?

That there’s a way to do this in this more of a a video, you know telehealth forum and then imaging is really.

We’ve heard a lot about access challenges for scheduling and how can we work.
together across the discipline with imaging to get patients scheduled, timely and appropriately at the right location. So while there are a lot of moving parts, these different working teams, we had a a template of how we would move forward with this work. First we needed to understand workflows we needed to do observations and did process mapping and really identifying barriers that could impact the flow. And then we had to just test it. And so we piloted we’re piloting different initiatives. We had to be really selective.
And how we determine the site, what teams?

How are we going to measure this?

Because the goal ultimately is that this is sustainable as we continue to move forward, and what adjustments we had to make.

You know, using rapid change cycles and finally the goal is that once these pilots are really done, is that this? We get this out everywhere we want to be able to utilize our. You know, these efficiencies and opportunities to really go across which will enhance the smilow 2.0.

And so this is just to understand there were multiple tools.
As I said, we want to be able to sustain this work. So we created within EPIC.

There are tools we created standard operating procedures. We looked at the literature of what is said that on the work that we're doing to validate that what we are doing makes you know is is aligned with what else is happening out around the country.

We graded metric based reports so we could share data so that people understand. How they're doing and where their opportunities are and to celebrate the successes, and finally,
00:39:09.818 --> 00:39:12.436 tell ASCO came out with some telehealth standards at the same time we were doing this work to ensure that we were doing the work that aligned with the ASCO standards.

00:39:12.436 --> 00:39:14.428 So these are the high level work that was happening and now what I’d like to do is switch it over to Christina and Mandeep to share how the work of the patient Visit Readiness project has taken the framework of what I have shared into a pilot.

00:39:14.428 --> 00:39:16.472

00:39:16.472 --> 00:39:18.356

00:39:18.356 --> 00:39:20.660

00:39:20.660 --> 00:39:23.180

00:39:23.180 --> 00:39:25.112

00:39:25.112 --> 00:39:27.359

00:39:27.359 --> 00:39:30.156

00:39:30.156 --> 00:39:33.086

00:39:33.090 --> 00:39:35.827

00:39:35.827 --> 00:39:39.210

00:39:39.210 --> 00:39:40.218

00:39:41.700 --> 00:39:45.137 Thanks Monica. So as Monica alluded to, our project was really on
The next five years, which has been showing that readiness is essential and it’s an essential component of patient safety as well as clinic flow. In our ambulatory setting, So this included basically just making sure that your patients that were coming in were completed all the prep that was done ahead of time was completed. The next appointment you know disposition was actually completed prior to the current visit. That’s coming up and making
NOTE Confidence: 0.77670228
00:40:21.550 --> 00:40:24.050 sure that any consults lab,
NOTE Confidence: 0.77670228
00:40:24.050 --> 00:40:26.336 any imaging or studying and studies
NOTE Confidence: 0.77670228
00:40:26.336 --> 00:40:27.860 or any prior authorizations
NOTE Confidence: 0.77670228
00:40:27.927 --> 00:40:29.442 that were required are being
NOTE Confidence: 0.77670228
00:40:29.442 --> 00:40:31.320 done ahead of time as well.
NOTE Confidence: 0.77670228
00:40:31.320 --> 00:40:34.978 So what we realized is that without the
NOTE Confidence: 0.77670228
00:40:34.978 --> 00:40:37.666 adequate preparation that was going on,
NOTE Confidence: 0.77670228
00:40:37.670 --> 00:40:39.678 there were significant delays
NOTE Confidence: 0.77670228
00:40:39.678 --> 00:40:41.686 within the clinic errors.
NOTE Confidence: 0.77670228
00:40:41.690 --> 00:40:43.442 Sometimes last minute cancellations
NOTE Confidence: 0.77670228
00:40:43.442 --> 00:40:47.480 for patients and an overall patient or
NOTE Confidence: 0.77670228
00:40:47.480 --> 00:40:50.130 provider satisfaction had decreased.
NOTE Confidence: 0.708353668
00:40:52.860 --> 00:40:54.780 And as Monica had mentioned,
NOTE Confidence: 0.708353668
00:40:54.780 --> 00:40:56.376 there was multiple surveys.
NOTE Confidence: 0.708353668
00:40:56.376 --> 00:40:58.371 There was survey questions that
NOTE Confidence: 0.708353668
were congregated and reviewed,
NOTE Confidence: 0.708353668

and within those visits,
NOTE Confidence: 0.708353668

what we realized is that there was.
NOTE Confidence: 0.708353668

Concerning Preclinic practices carried
NOTE Confidence: 0.708353668

Prep and post clinic wrap up found.
NOTE Confidence: 0.708353668

There was multiple variations
NOTE Confidence: 0.708353668

within our House system.
NOTE Confidence: 0.708353668

As you can see in this slide,
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you see that about 80% of the team
NOTE Confidence: 0.708353668

did some sort of prep before about.
NOTE Confidence: 0.708353668

But only about half of them really had
NOTE Confidence: 0.708353668

some form of guidelines to follow or
NOTE Confidence: 0.708353668

best practices within the clinic prep.
NOTE Confidence: 0.708353668

In addition,
NOTE Confidence: 0.708353668

a vascular majority of teams were
NOTE Confidence: 0.708353668

also not doing any sort of post clinic
huddle and most patients were leaving without any follow up appointment. Which again brought concerns to the team. We also surveyed clinic prep activities and found that the majority of respondents 84% do review the schedule ahead of time. But again, half did not use any standardized criteria, and a third do not review test results. Of course, do not communicate or review missing orders.
And lastly,

less than half did not evaluate ahead of time which patients could benefit from a nursing visit. McLeod.

So when doing a literature review, as Mike had mentioned, there was reviews being done and we realized was that we’re starting to work on this initiative and needed to really look at the ambulatory areas and see. You know what was happening in other areas, so a major article that we reviewed was published in 2021, which found that researchers were
performing a systemic review about
of 49 studies that ranged around
10 countries and highlighted about
8 previsit planning techniques
that could be used.
And with this review,
it really suggested that prepare
preparing for clinic can enhance the
quality of patient care as well as
patient to provider communication.
And 84% of the authors reported
Patient preparedness was aeally effective way to improve
patient centered care.
So when looking at what we’ve talked about, which is patient visit readiness, what does this actually mean and how do we achieve it? We needed to define this, so visit readiness really begins. Your post clinic wrap up from the prior visit as that will be outlined. You know, with an RN or a scheduler, at which time then you are looking at your next visit and really reviewing what is required for those people. Preclinic prep sounds obvious. This is a proactive approach of reviewing what the practice nurse is looking at and all the elements.
00:44:00.354 --> 00:44:01.991 that need to be completed before
00:44:01.991 --> 00:44:03.979 the patient comes in for the visit.
00:44:03.980 --> 00:44:06.598 And how do we achieve all that?
00:44:06.600 --> 00:44:09.954 It’s through completion of your provider
00:44:09.954 --> 00:44:12.735 disposition to guide the Previsit
00:44:12.735 --> 00:44:16.383 prep as well as the the defined team
00:44:16.383 --> 00:44:17.794 huddles to improve communication
00:44:17.794 --> 00:44:20.359 for all the teams and then this can
00:44:20.359 --> 00:44:22.298 all be done virtually or in person.
00:44:22.300 --> 00:44:23.800 Weekly, daily or really,
00:44:23.800 --> 00:44:25.675 whatever works for your team,
00:44:25.680 --> 00:44:27.856 but it allowed you to have the what,
00:44:27.860 --> 00:44:29.924 how and when of what patient was it?
00:44:29.930 --> 00:44:32.879 Readiness looks like.
00:44:32.880 --> 00:44:33.330 Next slide.
So I have seen really just to fix the team. This is Doctor Kirkman’s team and the post clinic cuddle that they run is usually done weekly on Friday and as you can see he did it in person with his team. This also act as a wrap up for the general elements that are being done within the clinic. What we found is that it engaged the staff and increased efficiency, communication and collaboration, and these huddles can really be customized to each team and what exactly you are requiring for your team. However, we did outline key players for each channel, meaning the practice nurse,
the provider and the scheduler.

And I’m going to hand it over to Christina now.

Casino.

Thanks Randy. So when we began our process a long time ago, we developed this Visio map which really outlined every element from check out from the previous visit to the next visit that they were being seen to really understand this process and how we can improve this across the health system.

We further broke this down and to the left hand side where you can see the
different swim lanes that looked at the responsibilities of the provider versus the practice nurse versus the schedule as well as we incorporated. Via medical assistance or the ACA’s. It was a lot of work to do it in this way, but it really helped to be. It really helped us to understand where we needed to improve our process. Next slide. So since we discussed the different elements that we focused on, we actually did develop some tools that were meant to be helpful for preclinic prep purposes and to lessen the workload of the practice nurse who is
00:46:30.660 --> 00:46:32.612 performing the preclinic prep elements.

00:46:32.612 --> 00:46:34.778 So the first is what's called the UNC Summary Nurse tab.

00:46:34.778 --> 00:46:36.829 It's actually located in the multi provider schedule.

00:46:36.830 --> 00:46:38.815 It allows the practice nurse who is performing the Preclinic prep one click area.

00:46:38.815 --> 00:46:40.006 To go through the different elements that she may find helpful to the Preclinic prep prep process.

00:46:40.010 --> 00:46:43.944 It involves many elements and components to the report, and components to the report,

00:46:43.944 --> 00:46:47.598 To go through the different elements that she may find helpful to the Preclinic prep prep process.

00:46:47.600 --> 00:46:49.532 So this was developed to hopefully reduce the amount of time that the practice nurse has to spend doing preclinic prep.

00:46:49.532 --> 00:46:52.432 It involves many elements and components to the report,
including treatment plan,

the actual follow up disposition from

that they can actually understand

what is needed for the next visit.

To help streamline this process.

So you can go the next slide.

The other feature that we developed

is what's called the Visit Ready

feature on the multi provider schedule.

This is a column that anyone can add

to their provider schedule and it for

those that are currently in the pilot phase.

The physicians will actually see

this being done in their areas,

but you can see that once the
00:47:40.601 --> 00:47:42.410 patient is deemed visit ready,

NOTE Confidence: 0.911246244285714

00:47:42.410 --> 00:47:44.405 the practice nurse will actually

NOTE Confidence: 0.911246244285714

00:47:44.405 --> 00:47:47.729 go in and make the patient a green.

NOTE Confidence: 0.911246244285714

00:47:47.730 --> 00:47:50.979 Check for yes or a red X for no.

NOTE Confidence: 0.911246244285714

00:47:50.980 --> 00:47:53.528 We also included a column for Visit

NOTE Confidence: 0.911246244285714

00:47:53.528 --> 00:47:55.805 Ready comments and that allows the

NOTE Confidence: 0.911246244285714

00:47:55.805 --> 00:48:00.326 practice nurse to make comments in

NOTE Confidence: 0.911246244285714

00:48:00.326 --> 00:48:01.439 that specific area so that number

NOTE Confidence: 0.911246244285714

00:48:01.440 --> 00:48:03.066 It can remind themselves of who’s

NOTE Confidence: 0.911246244285714

00:48:03.066 --> 00:48:04.779 to visit ready and who is not,

NOTE Confidence: 0.911246244285714

00:48:04.780 --> 00:48:06.588 as well as what they need to follow

NOTE Confidence: 0.911246244285714

00:48:06.588 --> 00:48:08.538 up on for that particular visit.

NOTE Confidence: 0.911246244285714

00:48:08.540 --> 00:48:11.095 This is also viewable by the provider

NOTE Confidence: 0.911246244285714

00:48:11.095 --> 00:48:14.110 if he rents it into your multi

NOTE Confidence: 0.911246244285714
provider schedule.
So that the providers are able to see their clinics prep as well.
Isn’t that the next slide?
In order to convey this new workflow, we performed formal team trainings to discuss this with each individual that included the discussion of the workflow itself, the huddles that we wanted them to do, as well as the tools that we developed to help streamline this process. We also offered initial first huddle, guidance and facilitation for the new Members that were being part of this pilot and the session
involved all team participants.

And were completed prior to the GO live.

Go to the next slide.

So as we have alluded to,

North Haven, Guildford and Greenwich

North Haven was our first site to go live in October of last year.

Greenwich currently went live.

I believe last week and we also

have planned sites that are going to

be going live in the near future.

Thoracic oncology head and neck

81
surgery GI met on.

As well as classical hematology and malignant hematology and North Haven, we also have incorporated trumple as well. They're not on this side, but again, this is a work in progress and a huge team effort. And go to the next slide.

So now on to the data. So we looked at many elements and we created this workflow and one of those included physician, disposition, compliance rate. This data represents 3 physicians from the North Haven site which looked at...
00:49:59.228 --> 00:50:03.037 data from pre pilot to April of 2022.

00:50:03.037 --> 00:50:06.070 So as you can see the provider see and

00:50:06.156 --> 00:50:08.964 the green line really was compliant

00:50:08.964 --> 00:50:11.799 with this throughout they acted more

00:50:11.799 --> 00:50:14.445 as our control line or participant.

00:50:14.450 --> 00:50:17.710 And we saw that as we went into October,

00:50:17.710 --> 00:50:21.301 we saw a gradual increase in provider

00:50:21.301 --> 00:50:25.063 a during the pilot phase as and

00:50:25.063 --> 00:50:28.156 tapering off into about a 90th,

00:50:28.156 --> 00:50:31.168 90 high 90 percentile of completion

00:50:31.168 --> 00:50:34.467 as well as provider be as well.

00:50:34.470 --> 00:50:36.302 But the next slide.

00:50:36.302 --> 00:50:40.106 So in addition to the provider compliance,

00:50:40.106 --> 00:50:42.638 we also get practice nurse preclinic

00:50:42.638 --> 00:50:44.099 preparation compliance rates.
This represents graphs in the Helix report format that we looked at from North Haven and Guilford, so you can see that North Haven had a huge uptick in their compliance when they actually started the pilot in October, and they really maintained that compliance rate into the above 95% throughout their. The time in this study within Guildford. They went live in February of 2022 and you can see that with them it was a little bit more of a gradual rise in compliance, but overall has again tapered off. into a great compliance rate for the remainder and go to the next slide.
In addition, we also looked at patient visit unreadiness volumes and reasons for why patients are deemed unready for their visit for North Haven. We calculated that about 17% of patients over the course of eight weeks were visit unready as well as Guilford, which was about 22% or 206 out of 930 scheduled visits and the real we listed the actual categories. But we actually found that the most common theme was the test.
ordering and scheduling that they were not performed or testing was not completed in a timely manner by the patient.

So in addition to our data collection, we are also really interested in feedback from the end user and ask them to respond to the following questions that you can see listed here for example. We have seen that the doctors have found fewer interruptions. They can review cases at the same times and our nurses have found that the huddles have really helped maintain helped manage patients efficiently,
as well as some of the other providers noted that. Improving the preparation really highlighted what patients did not have done prior to their visit. Move to the next slide. So during this process we definitely learned a lot, including the fact that specific tools can really streamline the process, but it also requires training and consistent utilization. In addition, consistency with performing huddles as well as physician leadership
and engagement is really a key player and a huge role in the success of this initiative, especially with regards to the disposition, completion and leading post clinic huddles in a consistent manner.

So for our next steps, as we look to the future, we plan on working with it to refine our compliance tools and really refine our epic related tools based on feedback from the end user and we will continue to perform a systematic approach when rolling these out. To really ensure success of this program.
for those in the ambulatory setting,
we’ll likely be working with you in the future with you and your teams to help improve your clinics and enhance patient preparedness, and we really look forward to your collaboration. During this huge team effort. So thank you so much for your time and we will now answer any questions that may have with Doctor Kochanski as part of the discussion as well. Thanks very much.
The you know the only thing I will there’s a couple things. One that we also are looking at, the press. Gainey, we have to understand how this is what the meaning is for patients as we’re doing this work. These this work and the only other thing I didn’t get a chance to say is so many people that have been involved in this the practice nurses the access team pharmacy. Obviously the physicians, the AP’s and I just want to say a huge thank you to all of them.
As well as Christina and Mandeep you know and Jeremy I’m going to ask you if you have any kind of pearls or words of wisdom that you might offer as an end user of this work. As we, you know, finish up. Sure, you know. I think for our team this this meeting has really been transformative for our group. And while there is a a core group that I think needs to be there which includes the physician and the practice, nurse and PFA SII think that the larger the group is, the more productive those meetings are.
And we have included in our meetings, our AP’s the infusion nurse as well as pharmacy and in doing so you really capture all of the different ways that we need to prepare for the visits, not just including whether a scan has been scheduled as ordered and will be available in time for the visit, but also where chemo orders need to be entered. Or informed consents need to be completed. It’s dedicated time to review the schedule with with PF A SI think we all know have these long lists of patients that have acute issues of us you know have these long lists of patients that have acute issues that we need to get in and rather than
being disrupted all throughout the day to figure out when that should be, we now have dedicated time to do that. As a physician. It also allows me to follow up with infusion nurses and the APP’s to find out. Uh, whether there are any urgent issues, dose modifications, things that need to happen with patients that I haven’t seen that week so that everybody on the team is really understanding where all the patients are in their course? You know who we can anticipate.
Might be progressing, or is having a lot of trouble where you know there might be flags that we say oh we need to bring in OCMD or social work or palliative care. It really is a holistic approach that can only be done when you have some dedicated time. And while I know that for my team we take an hour on Friday, I understand that not everybody has that much time. All of the patients from the week that was, and all of the patients that are in the week that follows,
and so it can be done in a shorter amount of time by just breaking it up into fewer days to review. You know, Jeremy, I think that the team work is really essential. I think it can be done as an hour that you set up. One of the things that can happen in that huddle on the day of treatment, or for that matter the week before, is to identify patients where
if it gets busy, that person might be able to be shunted to the infusion room because you know they’re going to get a treatment anyway and see you afterwards as opposed to, you know, waiting for everything. I’m the one question I have is, but to what extent have you been successful, either in New Haven or at some of the other sites? In pairing infusion nurses with physicians so that a physician isn’t necessarily working with every infusion nurse in the infusion room.
00:58:50.640 --> 00:58:52.236 I and maybe you do that, 
NOTE Confidence: 0.835687812142857
00:58:52.240 --> 00:58:54.319 it’s just my experience in the past 
NOTE Confidence: 0.835687812142857
00:58:54.319 --> 00:58:56.580 is that that has been challenging. 
NOTE Confidence: 0.6823876075
00:59:01.530 --> 00:59:02.838 You’re on mute. Yeah, 
NOTE Confidence: 0.905562244285714
00:59:02.850 --> 00:59:06.350 we, we actually haven’t with this work. 
NOTE Confidence: 0.905562244285714
00:59:06.350 --> 00:59:08.470 We have not focused on 
NOTE Confidence: 0.905562244285714
00:59:08.470 --> 00:59:10.590 the pairing or the team. 
NOTE Confidence: 0.905562244285714
00:59:10.590 --> 00:59:12.655 I mean, we definitely have an infusion 
NOTE Confidence: 0.905562244285714
00:59:12.655 --> 00:59:14.448 nurse as part of the huddles, 
NOTE Confidence: 0.905562244285714
00:59:14.450 --> 00:59:16.478 because whether they’re, it’s the charge 
NOTE Confidence: 0.905562244285714
00:59:16.478 --> 00:59:18.350 nurse that represents the infusion, 
NOTE Confidence: 0.905562244285714
00:59:18.350 --> 00:59:19.430 but we haven’t done that. 
NOTE Confidence: 0.905562244285714
00:59:19.430 --> 00:59:20.186 And with lean toss, 
NOTE Confidence: 0.905562244285714
00:59:20.186 --> 00:59:21.490 I think we’re going to have to. 
NOTE Confidence: 0.905562244285714
00:59:21.490 --> 00:59:23.122 You know, we’re looking at it a little 
NOTE Confidence: 0.905562244285714
bit differently, so I'm not sure.

What that will look like just yet?

So I guess to be determined.

Yeah, I know we had looked at it initially in hematology a long time ago, and with the move from New Haven to North Haven, it kind of didn't work correctly.

But I do agree that there’s a lot of value in that. It’s always challenging with schedules and what have you.

Although my strong sense is that there’s a real value of caring physicians with maybe not one person because one person could be off, but.
Two or three or four people, as opposed to.

15 right in any case, I just want to say you all have done a great job.

Thank you so much both for presenting the work, but more importantly, for all the really great work you’ve done, and there’ll be more to come, I’m sure.

Thank you so much for the opportunity.

Ohh thanks all of you.

Thank you so much. We appreciate it.