Hi, everyone. Thank you for joining this session. My name is Jacky Nyamwanda, and I'm the Director of the Master of Science in Medical Dosimetry here at Suffolk University, and I'm really excited to tell you about the program and share some information that I hope you'll find helpful. So I think I'll start with the mission of the program. So one of the key things that we are looking to do is to provide a rigorous and comprehensive education. And so this is something that we take very seriously, and the coursework is all designed to be rigorous and to give students, you know, the absolute best information that they need, especially to prepare them for clinical practice. Our students receive instruction from a very wide variety of faculty who mostly come from our clinical facilities in and around the Boston area. So all our adjuncts are either medical dosimetrists or medical physicists in some of the local affiliates that we have. And this has been really a blessing for the program because the students are learning from experts. Our students will also use the most advanced technologies to develop exceptional clinical skills as well as research experiences. And very important is we are preparing students for entry level positions. So at the base we are basically preparing students to graduate, to go into entry level positions. We're not expecting that they're going to be experts right on day one, but they will have the skills necessary to get them going at an entry level position. Some of the goals is that our students will be clinically competent, and these are things that we evaluate. And I'll elaborate a little bit more about that later. That they will think critically. This is highly, highly important. We are dealing with radiation. It's something that's once it's been delivered, it cannot be taken back and the effects can have, you know, you can have side effects that show up immediately. Some don't show up until much later in life, 15, 20 years down the line. So the ability to think critically is really, really important because you're presented with patients in very different and unique situations.
and you have to make decisions
about how you're going to create this treatment plan.
We also hope to graduate students
who are able to communicate effectively,
both in written and in verbal form.
This is, it goes to professionalism
and being part of a team.
And so communication is always a very critical part
of that work that we do.
And then lastly that they also appreciate
the importance of continued education.
This is a rapidly evolving field, always changing.
There's always new techniques coming out.
We are constantly learning,
and I'm still working as a dosimetrist part-time
at Mass General Hospital.
And, you know, I'm still learning every day.
A lot of times I learn from my students
because the technology changes so quickly.
And I think that's also something
that makes the the field very exciting
because you are constantly exposed to new information
and learning new things.
So what do dosimetrists do exactly?
This is something that a lot of people
who are applying to our programs
are having to explain to their parents and families
and, you know, people that they're meeting.
And so a dosimetrist is,
is part of the radiation oncology team.
And we are charged with designing radiation treatment plans
by computer means for patients living with cancer
who are going to get radiation treatment.
And so the goal is to deliver a curative dose to the tumor
while at the same time trying to spare
as much as possible all the normal tissues
that are surrounding, in the surrounding area.
So for example, if you are giving radiation,
if you're designing a radiation treatment plan
for a patient with breast cancer
like what is shown on the screen there,
one of the things you might be worried about is the heart,
which is that central structure that's being shown there,
also as well as the lungs,
which is the dark area that you see on the screen.
So it's always this balance between getting enough dose
to the tumor and eradicate those tumor cells,
but also not causing damage to the patient.
So for example, in breast cancer,
if you eradicate the tumor,
but then later down the line the patient has cardiac issues
and ends up, you know, and some of those can be very morbid,
you know, then that's not a good outcome.
So our goal is to basically do the best we can
and meet these sort of competing demands
when creating the treatment plan.
So a little bit about the program.
So we enroll students in the fall semester.
The program length is 21 months for students
without background in radiation therapy.
Applicants who are coming in with a background
in radiation therapy
may be able to waive the first semester,
which is a leveling semester,
and complete the program in 17 months.
However, most students actually do not have a background
in radiation therapy.
So we are a very small program.
Right now, we are enrolling eight students
and typically we just have one or two
who have a background in radiation therapy.
I myself had a background in physics.
I had never worked as a radiation therapist,
and I, you know, at the time that I went into the dosimetry
was on the job training.
And so all my training was done in the clinical setting.
Now, obviously, graduating from an accredited program
is required, but, again,
most of our applicants don't have a background
in radiation therapy.
So what kind of backgrounds come into the program?
We have people with majors in biology, physics, chemistry,
even mathematics, and then health sciences, psychology.
So as long as the student has all the prerequisite courses
and the minimum GPA,
they're welcome to apply to the program.
Our affiliates are in and around the Boston area.
I feel like we're very lucky to be surrounded
by just a wide array of incredible world class hospitals.
Mass General Hospital and Brigham and Women's Hospital
were the first two facilities when we started the program
that we had on board.
MGH is a 12 minute walk literally
from where I'm sitting right now at the university.
So we are so blessed and so lucky
to be able to take advantage
of that as a training site for our students.
Other hospitals include Lahey Hospital,
Rhode Island Hospital in Providence,
and then various satellites of the MGH
and the Brigham and Women's Hospital
in and around the greater Boston area.
And this map just shows a distribution
of where these facilities are.
So all those different points on the map show you
in a sense where all the facilities are located.
All of these facilities,
the farthest one away is about an hour drive
06:30 from the university.
06:34 All of the rest, some of them are actually
06:35 accessible via the subway,
06:37 and students rotate and go to at least two facilities.
06:42 So what are some of the strengths of the program?
06:43 I think one of the main strengths is the small class sizes.
06:46 Like I said, right now we take eight students per cohort.
06:49 We may go up to 10 in the next year or in a couple of years.
06:53 So again, very small,
06:54 and so we get to know our students really well.
06:57 The students get to know us very well
06:59 and I think it helps us to be able
07:01 to keep track of the students
07:02 and see where they are and how they're doing
07:04 both, you know, didactically in the clinic
07:07 and also on a personal level.
07:08 So we do a lot of, you know, one-on-one advising
07:10 and we're able to do that
07:12 just because the program is so small.
07:14 Something else I had mentioned and I will reiterate here
07:16 is that we, a lot of our instructors are adjuncts
07:19 from the different hospitals.
07:20 So again, these are board certified
07:22 medical physicists and dosimetrists
07:24 and they're clinical experts.
07:25 They have current knowledge.
07:27 And so I feel like our students are exposed
07:29 to all the latest information.
07:31 Sometimes even before it gets into the curriculum,
07:33 we, you know, we get to get information from them
07:37 and are able to add them in because one of the,
07:39 one of the things with the curriculum that we follow
07:41 is that it's a living, breathing curriculum
07:43 that has to get updated
07:44 as new techniques and protocols come up.
07:46 So that's been, I think, a very big strength of the program.
07:49 And then the other one is that, you know,
07:51 at its core is that the clinical rotations,
07:54 it's all experiential.
07:56 Students are graduating with about 1300 clinical hours.
07:59 They get to rotate to a large center,
08:01 a large academic medical center,
08:03 as well as a small center.
08:04 And we feel very strongly that this is a good,
08:07 these are good experiences
08:08 so that students can learn in different settings
08:11 and be able to anticipate what they might see
08:14 once they start working,
08:15 rather than just being at one center and not,
08:18 and only learning one style of doing things.
08:21 So that, I think, is another strength of the program.
08:25 It also allows them to get exposure
08:27 to multiple treatment planning systems.
08:29 So all of our students will graduate with experience
both in Raystation as well as Eclipse, which are the two main planning systems out at the market at the moment. And then the other strength that we have is that our students, all students get a three week rotation in proton therapy. So proton therapy is a specialist type of radiation treatment that's, it's a bit more precise, a little bit more, it's more specialized. It's not available everywhere. We're very lucky that our students get a three week rotation at MGH. And in fact, I've had some graduates, some of our graduates get employed in proton centers in different parts of the country directly from the program. So that's been a big, big plus for us. The other is that the Brigham and Women's Hospital has an MRI Linac. So this is a linac accelerator that has an MRI Linac embedded, and eventually we are going to be having students having experiences on that machine as well in terms of observing treatments and just learning how that works for adaptive treatments, which is where you might actually modify a plan of the day based on what you see on the patient's anatomy on that given day. In terms of the curriculum, it is four semesters plus a full-time summer internship in between year one and year two. As I said, the first semester is a leveling semester that's required for everyone without a background in radiation therapy. And again, majority of our students do take the, the leveling semester. So that's just an outline of what the curriculum looks like. And then the clinical rotations will start in the spring semester or year two. And then, again, you have two other rotations in the second year. And so what do the clinical rotations look like? You know, so in the first semester you are in the clinic, students in the clinic two days a week. That's Tuesdays and Thursdays right now from eight to 4:30. In the summer, it's 40 hours a week. It's a full-time summer internship for 12 weeks. So this is where I think everything comes together for the students because you're doing nothing but you are only in the clinic and there's no didactic work at that time. And then in the second year, both spring and fall, the students are in the clinic for three days a week.
The rotations are competency based. So it's not just about the 1300 hours, but there's set competencies that students have to complete based on designing treatment plans for different anatomic sites. So we might start with palliative, like whole brain, maybe spine, and then the rectum, and then we move on sequentially. As we progress through the program, the complexity of the planning, you know, increases. So we'll start students in the summer on breast treatment. They might do prostate, abdomen, and then move on into the second year. And by the end they're doing the most complex planning, which is like for head and neck cancers as well as GYN with a lot of nodal involvement. So it's built to be very sequential. And throughout the rotations, students are also doing a lot of observations. They're going to the treatment units and observing different simulations and different treatments, different procedures. They spend time with medical physics looking at QA, physics plan checks. So they're involved in, you know, just different aspects of the operations in the clinic and observing all these different treatments. And we feel that that is very important, especially for people coming without a background in radiation therapy. We feel very strongly that they have to be exposed and be in the clinics and actually learn and see how the treatments are delivered because that's how, as a planner, you get to learn what works and what doesn't work when you actually see the treatments. We do follow AMD curriculum guidelines, but we also add additional content. We're very fortunate to have an advisory committee that's made up of representatives from all the different clinical sites and they advise us on what they think should be added to the curriculum, what should be emphasized, what are the skills that they feel students should have when they graduate. So those are all things, we're very fortunate to have that committee that helps us. Every student is assigned a clinical preceptor. So this is someone who is a dosimetrist in the clinic, board certified, that is in charge of their clinical education, making sure that they're staying on track.
with their assignments, providing evaluations, and is sort of the liaison between the university and the hospital. And so, and in terms of the evaluation, what's one thing that I think is very important is that the way students are evaluated in the clinical component is not just on their technical knowledge, on the cognitive. We also look at affective, meaning your attitude. Professionalism is a very big component of the program. You know, what's your attitude? Are you on time? Do you take criticism well? Do you take initiative? Do you show an inclination for learning? Are you self-directed? Things like that. And then psychomotor, how do you go about doing things? And all these three things are weighted equally, which sometimes surprises students, but it's important because we don't want to graduate students who can create beautiful, excellent treatment plans, but, you know, don't have a good attitude. You know, there's a certain, you know, level of behavior that is expected in a professional setting, especially in a hospital. And so we put a lot of emphasis on all those, all those aspects. So we are training students to be, to be good dosimetrists, but also to be professionals, you know, so that when, you know, when they go out there, they're representing the university and representing the program. And so those are things that we really emphasize.

We do also have a clinical coordinator, Crystal Stancell. She's in charge of all the scheduling and coordinating everything having to do with the rotations. She's our liaison to the clinical sites and keeps everything running, does clinical advisement with the students. So we, we keep, you know, we end up between her and I, you know, we keep a very close eye on how the students are progressing. And so, and I think that's just good in terms of providing students with support. Like I said, the program is very rigorous and so all the help that they need to make sure that everyone is on track I think is pretty useful. And so she's a supportive resource.
that all the students I think appreciate having.
The program also has a research component.
This is year-long.
Students get to pick their own topic.
We emphasize evidence-based practice.
So a lot of what we do is based on, you know, protocols,
certainly based on what the clinical sites are doing,
but this is always based on research, right?
It's always based on evidence.
And so we want our students to graduate with the,
with a strong basis of understanding
how this evidence is generated
and how to use it in their clinical practice.
And so one of the ways we do that is to,
in this yearlong research methods course,
which also culminates in a project.
So like I said, the students pick their own topic.
you're assigned a clinical mentor
who is the subject matter expert,
and then I serve as a faculty advisor on the Suffolk side.
And students have, you know, presented,
have actually gone on to submit posters.
We've sent out manuscripts to publication that are pending.
And one year, we also won the student writing competition
through the professional association,
which is the American Association of Medical Dosimetry.
So that was, that was one of the highlights
that came out of this work with these research projects.
So this is an example of a poster
that one of our students did.
This was in conjunction with one of the physicians at MGH,
and that was presented at the annual conference
that year for our professional association.
And then in 2021, two of our students won third place
in the student writing competition
through their professional association again.
This was an evaluation of robustness
of delivery between two techniques.
And so that was also another highlight for us.
So we're very proud of the students
when things go well and their projects, you know,
end up getting recognized.
In terms of program effectiveness, you know,
how does the program compare
or how do we, what are some of the outcomes that we look at?
So these are, these are metrics we have to report
to our creditor, which is the JRCRT.
So in terms of job placement, you know,
most of our students actually are hired
well before graduation.
Almost every year all the students
have a job before graduation,
and a hundred percent
are hired within six months of graduation.
One of the highlights of the program, sorry, of the university, is we have a career center who have been invaluable in helping our students in the job search process. They have, we have a career readiness prep module in conjunction with the career center that involves helping students with resume preparation, interviews, having mock interviews, and just best practice on how to go about searching for a job. They walk them through a SWOT analysis, you know, what are their strengths, what are their weaknesses, where do they want to be? And I think that's been really helpful for them.

In terms of the MDCB exam, this is a board exam that students will take post-graduation typically in September or January. And right now our pass rate is 95% on the first attempt, and this is a five year average. And then our retention has been very good. We are at a hundred percent retention for last year. That is reported on an annual basis, and so we're hoping to be able to keep those metrics up. This is just an example of some of the recent employers where our students have ended up. So Mass General Brigham is one of the biggest employers for the program. We have about 20 of our graduates working within the Mass General Brigham system. We also have people working at Beth Israel Lahey, Rhode Island Hospital, Memorial Sloan Kettering in New York, Vanderbilt in Tennessee, Montefiore in New York, Maryland Proton Center, UC San Diego. So basically our students are in different parts of the country. And just depending on, you know, where they want to be and where the jobs are. So right now the job outlook is looking very good and we give them as much assistance as possible. In terms of what to expect in the program, it is a graduate program, so for some students coming in from undergrad there is a little bit of an adjustment to be made. It is rigorous, but it is also fun. So if you can believe that we can merge the two, it's rigorous and yet it's fun. We do look for accountability. It is a graduate level program, and so we are expecting some level of independence and self-directedness. We emphasize students learning from peers.
You know, we encourage students to collaborate. You know, certainly hand in their own work, but I think students do learn well from one another. And sometimes a student could explain a concept even better than I could to somebody else, just in a different way. And so we encourage that. We encourage sharing because that actually is a reflection of what goes on in the clinical setting. No one ever really practices in a vacuum on their own and so it's very collaborative. We also expect that students will grow both personally and professionally. I do see that as students end up graduating, when I compare them from how they were when they first came into the program, they're changed. They've become a different person. And so it's always nice to see them go through that trajectory. And I think at the end of the day, it's rewarding. You're in the clinic, you're working on actual clinical cases. Meaning the plans that you create are going to be used for treatment. And so, and I think at the end of the day that's rewarding because everything you're doing ultimately is helping someone at the end of the day. And so that's all I wanted to share with you about the program. Thank you so much for taking time to listen, to listen in on this presentation. That is our contact information. If you have any questions, feel free to get in touch with us. Thank you. (upbeat music)