So might as well start on time, but thank you everyone so much for joining us and happy Friday.

My name is Alex. I'm one of the cancer genetic counselors here at Yale, New Haven Health, and I'll be your moderator today. We've been working on this for months now, so we're excited to share this all with you.

We're so excited to have you all here for genetic counselor for a day.

We've been working on this for months now, so we're excited to share this all with you.

and that's whether you just heard or you're already preparing your
NOTE Confidence: 0.86626744
00:00:34.595 --> 00:00:35.660 genetic counseling application
NOTE Confidence: 0.86626744
00:00:35.660 --> 00:00:37.170 for the upcoming cycle.
NOTE Confidence: 0.86626744
00:00:37.170 --> 00:00:41.850 We really hope that this event can serve as.
NOTE Confidence: 0.86626744
00:00:41.850 --> 00:00:43.873 A good solid foundation for what the
NOTE Confidence: 0.86626744
00:00:43.873 --> 00:00:45.928 profession is and what it has to offer.
NOTE Confidence: 0.86626744
00:00:45.930 --> 00:00:48.106 And of course, how did they get there.
NOTE Confidence: 0.86626744
00:00:48.110 --> 00:00:49.190 If you want to.
NOTE Confidence: 0.8842011
00:00:52.420 --> 00:00:54.808 As promised, very jam packed schedule.
NOTE Confidence: 0.8842011
00:00:54.810 --> 00:00:57.066 The first part of our event
NOTE Confidence: 0.8842011
00:00:57.066 --> 00:00:59.485 today will focus more on kind
NOTE Confidence: 0.8842011
00:00:59.485 --> 00:01:01.570 of what genetic counseling is,
NOTE Confidence: 0.8842011
00:01:01.570 --> 00:01:03.560 what different specialties there are,
NOTE Confidence: 0.8842011
00:01:03.560 --> 00:01:06.384 followed by a 15 minute break and then
NOTE Confidence: 0.8842011
00:01:06.384 --> 00:01:09.365 the second half is more so focused
NOTE Confidence: 0.8842011
00:01:09.365 --> 00:01:11.125 on genetic counseling programs.
NOTE Confidence: 0.8842011
What to expect in Graduate School

and will wrap up with a question and answer session at the very end.

As we go through our presentations today, I'm sure you'll have lots of different questions, so do feel free to write them in the chat and if time allows, I will be posing a couple of questions to each of our speakers at the end of their presentation. But as mentioned before, if we aren’t able to get to your question, we’ll have a fairly generous amount of time at the end of our event to wrap things up there.
Finally, a shameless plug for your feedback. This is only the second year that we've done the genetic counselor for a day event, so we're absolutely looking for ways to improve and to continue to improve as we host this event in the coming years. So at the end, or maybe sometime next week, we'll be sending out a survey with questions about your thoughts on the program and what you would like to see. What you didn’t see. And we’ll also be recording the event, so if you complete our survey, you can have a link to the recording of the event, and that’s for whether
00:02:30.186 --> 00:02:32.650 you are able to stay for the entire
NOTE Confidence: 0.89830464
00:02:32.650 --> 00:02:35.042 duration or just a small part of it.
NOTE Confidence: 0.89830464
00:02:35.050 --> 00:02:36.570 But thank you in advance.
NOTE Confidence: 0.8516884
00:02:39.110 --> 00:02:41.910 And I have to say that the views
NOTE Confidence: 0.8516884
00:02:41.910 --> 00:02:43.590 and opinions expressed in these
NOTE Confidence: 0.8516884
00:02:43.660 --> 00:02:46.198 presentations are those of the speakers,
NOTE Confidence: 0.8516884
00:02:46.200 --> 00:02:48.065 and they don’t necessarily reflect
NOTE Confidence: 0.8516884
00:02:48.065 --> 00:02:49.930 the official policy of Yale,
NOTE Confidence: 0.8516884
00:02:49.930 --> 00:02:51.046 New Haven Health,
NOTE Confidence: 0.8516884
00:02:51.046 --> 00:02:53.278 the National Society of Genetic Counselors,
NOTE Confidence: 0.8516884
00:02:53.280 --> 00:02:55.518 and or other genetic counseling programs.
NOTE Confidence: 0.8516884
00:02:55.520 --> 00:02:56.944 So, without further ado,
NOTE Confidence: 0.8516884
00:02:56.944 --> 00:02:59.630 I’ll turn it over to Amanda Ganzak,
NOTE Confidence: 0.8516884
00:02:59.630 --> 00:03:03.627 who will be talking more about the.
NOTE Confidence: 0.8516884
00:03:03.630 --> 00:03:05.240 Giving us some background about
NOTE Confidence: 0.8516884
00:03:05.240 --> 00:03:06.528 the genetic counseling profession.
Alright, there we go. I'm Amanda Ganzak Anne. I'm so happy to be here and welcome everyone for participating in our event today. What I hope to do is give us a little bit of sort of groundwork and provide some baseline information about the field of genetic counseling before we sort of break out into some of the sub specialties here. With our lucky genetic counselors representing Yale, New Haven Health and Yale Medicine today.
of the Arcadia University program, which is now become the University of Pennsylvania genetic counseling program.

I, upon graduation, worked at MD Anderson Cancer Center in Houston, TX and particularly in the logic oncology department as a part of their clinical cancer genetics program.

And so I worked also very closely with the UTI genetic counseling training program. While I was there.

As well, I then transitioned to the Hospital of University of Pennsylvania and worked, and the cancer Risk Assessment Program and the Bassar Center for BRCA.
And then joined the team here at Yale, New Haven Health in 2017 and currently serve as a lead genetic counselor in the program.

So what is a genetic counselor? You know, I'm sure you guys landed here because part of what you Googled or heard about the field sounded pretty interesting.

But you know, whenever you go into some type of a social event or you're asked, you know what do you do as it? As for your job. And I say genetic counselor. Usually people look sideways and have no clue what that is.
So I thought this was a rather funny representation of the various types of interpretations people make. Or assume when they hear what it is that I do as a genetic counselor, so everything from making the perfect baby to working in a lab to, you know, extracting an altering DNA. So all of those things aren’t necessarily really what we do, and it’s probably quite different than that and hard to explain, so I hope after today you all understand a lot more about what it is to be a genetic counselor and what our day-to-day job really looks like.
So what is a genetic counselor?

Let’s look at sort of the definition here.

So genetic counselors are health care professionals with advanced training and medical genetics and counseling who educate, guide, and support patients seeking information about inherited diseases and conditions in order to provide a better understanding of how genetic information impacts patients, lives and lives of their family members.

OK, so let’s unpack all of this.
Really a lot of what genetic counselors do is translate complex genetic information in a way that the average person can understand, digest and really be able to apply what they learned in terms of what their risk might be for a genetic or hereditary condition. To make choices about their medical care as well as understand what that risk might mean for their children and other family members. But a genetic counselor shop is not merely to explain complex test findings, it’s also to help patients chart a course for how to use that knowledge proactively.
And there was a task force created in 2003 as part of the National Society of Genetic Counselors to really help develop a definition of genetic counseling. And so they have defined this as a process of helping people understand and adapt to the medical, psychological and familial implications of the genetic contributions to disease. And that process really integrates interpreting medical and family histories to assess the chance of disease. Occurrence or recurrence within a family. To educate about the inheritance testing options, medical management,
prevention resources and research.

And the counseling is to really help promote informed choices in patients and how to help that patient adapt to that risk or condition that they might have been found to have.

And so really, our job is multifaceted. Everything from performing a risk assessment, providing education might even be delivering a diagnosis for that individual family members or their child or future child help provide the psychological support and really hope to promote advocacy along the way.

So how do we become a genetic counselor? So Jenna counselors obtain a Masters degree,
which is typically a two year program in genetic counseling from a program that’s been accredited by the Accreditation Council for Genetic Counseling or the AC GC. And right now there are about 55 training programs in the US and Canada. Typically the training includes both classroom based learning as well as clinical rotation, so you kind of get a combination of on the job learning from those in the field across various specialties, but also sort of learning that baseline detailed knowledge of genetics, inheritance, results and all the
information that you’re going to need

Upon graduation, candidates then sit for the American Board of Genetic Counseling or a BGC board certification exam to become a certified genetic counselor, and then on the state level. There is licensure of genetic counselors. Currently in 26 States and three more states have licensure bills that have passed or in the process of rulemaking. So in terms of the history of their profession, so in 1955, Doctor Sheldon Reed presented the concept of genetic counseling at
the first International Congress on Human Genetics in Copenhagen, and he then published a book on counseling and medical genetics. But it really wasn't until 1969 where the first genetic counseling program was founded at Sarah Lawrence College, right here. And in 1979, the National Society of Genetic Counselors was founded in 1981. Certification examinations were developed in conjunction with credentialing of medical geneticists.
which are physicians.
In 1993, the ABG established, and began certifying genetic counselors and accrediting training programs in the USN,
In 2002 the first state licensure was approved in Utah, and they became the first state to license genetic counselors an in 2021. Now 26 states have licensure and three states are pending.
And if you look at how has the profession grown with time, it seems to be almost exponential.
So just 30 years ago there was only just over 400 and counselors.
And as far as this, you know, graph takes us. It has now approached 5000 and when I look back as to when when I graduated in 2008, the field has more than doubled, which is absolutely amazing. So there is a lot of career opportunity. Here, as a genetic counselor. Which is just very exciting for the field overall. Yeah, we really have seen that genetic counseling as a career is rated one of the top health care support...
00:11:09.675 --> 00:11:11.949 jobs out there, according to U.S. news.

00:11:11.949 --> 00:11:12.292 An reports as well as the US Bureau of Labor Statistics.

00:11:12.292 --> 00:11:14.846 And if you ask most genetic counselors, 90% of us are really satisfied in the profession that we sit in.

00:11:16.530 --> 00:11:19.148 Which is, you know, not all specialties in all careers and people in various professions can maybe save with that high of satisfaction score.

00:11:19.150 --> 00:11:21.562 In 2018 when we look internationally, there are approximately 7000 genetic counselors in 28 different countries.
And the NSDC does a every two year professional status survey to look at who are genetic counselors. And right now, we’re still large majority female but always looking to recruit our male counterparts to be genetic counselors. It’s just sort of been a female driven field for a very long time. 2% of responders to the status survey responded that they were part of the disability community as well. If we look at the areas of practice about 50% of genetic counselors are in a position where they have direct patient care.
And really, what does that mean?

OK, they're looking.

You know they're working with patients face to face.

They might be supervising students, participating education and teaching.

They do ordering of genetic testing.

They might do clinical coordination.

And that’s in comparison to non direct patient care genetic counselors and those may be ones who are working on in a lab where they’re writing lab based genetic test reports or answering questions for providers who are ordering genetic testing, they might be doing interpretation.
variance from genetic testing. They might be at liaison between customers and performing their own research. And then there is positions that sort of a mixed based approach where they have some direct patient care in clinical coordination. But they also might be working more of sort of a lab based or industry stats side of things where not all of their job responsibilities include working with directly with patients. Among genetic counselors, 90% of them work full-time and 10% work part time.
And when we look at positions

and this is before Kovid,

so take this number with a grain of salt.

Genetic counselors are 40% of them were working remotely as part of their position,

That number has increased,

but slowly we’re starting to make our way back into the clinic full time.

As we all get vaccinated here.

So in terms of current statistics and areas of practice,

genetic counselors have very different specialty areas and this is just sort of further subdivided with time.

Everything from prenatal or reproductive
genetics, pediatric genetics,
neurogenetics, metabolic diseases,
genetics testing in laboratory,
adult genetics, cardio, genetics, and cancer.
So you’re going to hear about a lot of these different specialties today,
which is great to give you a good overview of how.
We’re all genetic counselors,
but our jobs are sort of a little bit different based on what we specialize in.
And then looking at where we based out.
You know many people might be working in an academic or university.
based setting like here at Yale, New Haven Health and Yale Medicine. They might be just working for a hospital that’s not affiliated with an academic setting. They may be working for nonprofits or government or in a laboratory. And when you look at the areas of specialty among genetic counselors, this also has changed overtime. So in the very early years of the profession, many more genetic counselors were working in the prenatal or reproductive side. Or general genetics side of the field. But with time, what we’ve notice is
that the field of genetic counseling in the specialty of cancer has increased with time. And it’s actually the highest kind of specialty area currently. Now for genetic counselors, they might not always work in just one single specialty among survey genetic counselors. 1/3 of people practice in just one area of specialty. However, they might have a position where they are counseling patients with multiple different specialties,
so they might have patients who they are.

Counseling based on prenatal based genetic testing and then their next patient might be counseling on a cancer predisposition syndrome. So there is some variability and genetic counseling positions. In specialty areas, I commend all the genetic counselor counselors out there who do have to more than one practice area, ’cause I don’t know how they do it. But as you know, really being as someone who works in a single single specialty, but those positions do exist.
00:16:27.810 --> 00:16:29.715 If certainly if someones interested

00:16:29.715 --> 00:16:32.643 in sort of more than one specialty

00:16:32.643 --> 00:16:34.547 area through their training.

00:16:34.550 --> 00:16:34.950 Now,

00:16:34.950 --> 00:16:36.950 the majority of direct patient

00:16:36.950 --> 00:16:39.534 care positions really are a face to

00:16:39.534 --> 00:16:41.370 face type model for most people,

00:16:41.370 --> 00:16:43.160 although there were some telephone

00:16:43.160 --> 00:16:44.234 and Tele health.

00:16:44.240 --> 00:16:46.599 You know video type Konsult visits that

00:16:46.599 --> 00:16:49.270 were a part of the counseling model.

00:16:49.270 --> 00:16:51.256 With COVID we have shifted to

00:16:51.256 --> 00:16:53.422 probably much more in this phone

00:16:53.422 --> 00:16:55.367 and Tele health model nowadays.

00:16:55.370 --> 00:16:57.736 An I really do not think that
that’s going anywhere anytime soon.

I think what that has really also demonstrated to us is we’ve been able to expand our services to patients who might not. Otherwise, have access to a genetic counselor in their geographic area, and also anecdotally, what I have noticed with my patients is that now I can really offer testing in families where I found a genetic risk and identified the gene and the family to more systematically offer testing to their relatives more easily so they might not be
00:17:27.297 --> 00:17:29.591 based out of New Haven or in the Yale New Haven health system.

00:17:29.591 --> 00:17:30.947 But being able to get them registered in our system and seeing them remotely now becomes a much easier possibility and then offering them testing for the no mutation that’s been identified in the family.

00:17:30.947 --> 00:17:32.956 Has really increased the ability for us to share this information with relatives and we’re actively get them tested.

00:17:32.956 --> 00:17:34.852 The average salary for a full time genetic counselor makes just under 30k.

00:17:34.852 --> 00:17:36.742 Has really increased the ability for us to share this information with relatives and we’re actively get them tested.

00:17:36.800 --> 00:17:38.515 So we look at the salary of genetic counselors.

00:17:38.515 --> 00:17:40.620 The average salary for a full time genetic counselor makes just under 30k.

00:17:40.620 --> 00:17:42.570 Has really increased the ability for us to share this information with relatives and we’re actively get them tested.

00:17:42.570 --> 00:17:44.250 So we look at the salary of genetic counselors.

00:17:44.250 --> 00:17:46.156 The average salary for a full time genetic counselor makes just under 30k.
$95,000 when surveyed and our salary has truly increased over the years and you graduate may expect to make about $75,000 a year for full time position. A lot of that can also depend on geographic area. Obviously taking a job in a city like New York City, there where the cost of living is more expensive, this salary. Likely it should be more than someone who might be. Working in a smaller based town or hospital system and those genetic counselors who work for direct care type of positions,
they make about $83,000 on average in genetic counselor who works in a position with nine direct patient care or maybe more of it is a lab or industry based physician. They make on average 100 and $14,000 and then the positions that are mixed so they have some direct patient care in some non direct care. Those positions salary wise kind of fall in between and they make $97,000 a year. So what can you expect when someone has an appointment with a genetic counselor? So I want to go through a little bit of what
the process and what that appointment
NOTE Confidence: 0.8991957
really networking typically look like.
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So the 1st and biggest step is really taking
NOTE Confidence: 0.8991957
a detailed medical and family history.
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So here we have Dirk bringing
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in his family tree to class.
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Yeah it represents his parents,
NOTE Confidence: 0.8991957
his siblings, his grandparents.
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And that's a lot of what we do.
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So as we talk through today I
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want to introduce this, you know.
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Family history collection tool that we
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in genetics call a pedigree and get you
NOTE Confidence: 0.8991957
familiar with what this looks like.
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Since several of the genetic counselors
NOTE Confidence: 0.8991957
will share some case examples
using pedigrees from patients. And a pedigree is really a representation of the family tree and it helps to diagram the potential inheritance of a condition or disease through several generations of a family. It also shows the relationships between family members and indicates who in family member who in the family might have certain traits or disease. So on the right hand side, what you’re seeing here is that women are represented by the circles and men are represented by squares. So if this was my patient here who was
A male, he had a brother and a sister, so all the children are on one line together here and their parents are the next level above them. So this would be their mom. This would be their dad on Mom's side of the family. We have an uncle and aunt and then above there are the grandparents to my patient. And anyone who is shaded in so these individuals here are those who have a certain genetic risk or disease. So for my job as a cancer genetic counselor, these might be people in the family who have cancer and so the more people who are shaded in in multiple
generations are all factors that we assess for to determine if there is a hereditary risk within the family.

So I wanted to introduce this so that you have some baseline information as the genetic counselors after me. Talk more about their family histories that they’ve collected.

So after we’ve collected the family history, we then perform the risk assessment. We take all those factors together and talk about how likely does that individual or family have a hereditary risk?

We provide education about genetics inheritance,
00:21:26.300 --> 00:21:29.000 how this would impact the patient
NOTE Confidence: 0.8991957
00:21:29.000 --> 00:21:32.076 and their family members if we found
NOTE Confidence: 0.8991957
00:21:32.076 --> 00:21:34.458 a certain disease in their family.
NOTE Confidence: 0.8991957
00:21:34.460 --> 00:21:36.295 We would help coordinate consent
NOTE Confidence: 0.8991957
00:21:36.295 --> 00:21:37.396 for genetic testing.
NOTE Confidence: 0.8991957
00:21:37.400 --> 00:21:38.132 When applicable,
NOTE Confidence: 0.8991957
00:21:38.132 --> 00:21:39.596 we coordinate genetic testing
NOTE Confidence: 0.8991957
00:21:39.596 --> 00:21:40.328 when applicable,
NOTE Confidence: 0.8991957
00:21:40.330 --> 00:21:43.074 and there is different types of medical
NOTE Confidence: 0.8991957
00:21:43.074 --> 00:21:45.833 genetic tests out there and we really
NOTE Confidence: 0.8991957
00:21:45.833 --> 00:21:48.101 sort of focus as genetic counselors
NOTE Confidence: 0.8991957
00:21:48.175 --> 00:21:50.703 in the category here on the left that
NOTE Confidence: 0.8991957
00:21:50.703 --> 00:21:54.280 we would deem medical genetic tests.
NOTE Confidence: 0.8991957
00:21:52.808 --> 00:21:54.276 Those like diagnostic testing.
NOTE Confidence: 0.8991957
00:21:54.280 --> 00:21:56.996 So someone coming in with a cancer
NOTE Confidence: 0.8991957
00:21:56.996 --> 00:21:59.098 diagnosis and doing genetic testing
to assess for genes that cause cancer.

Carrier testing, you know, looking at subsets of populations to see if they carry a single mutation that when combined with another mutation in that gene could cause risk for children.

Prenatal diagnosis over there abnormalities on an ultrasound or through some initial screening tests that looked abnormal and now we’re trying to understand whether the baby in fact is infected.

Newborn screening, so once that baby is born there some testing that can be done, particularly for metabolic diseases to
see if that child could be affected.

Since early intervention and changes to diet are so key to long term survival of those kids.

Predictive diagnosis OK, once we have a known genetic disease in our family, testing those relatives to see who else inherited that disease.

And these are a little bit different from non medical genetic tests like paternity testing or genealogy testing. That you might hear about or see in your local pharmacy or forensic based testing.

So what is the process of genetic testing when we most often performed
genetic testing through blood sample? Or we can use a saliva sample. Here is an example of what. We're in individual, would spit into a tube to collect the sample for genetic testing, but it can be additionally acquired through for newborn screening, a little heel prick where the blood is then withdrawn to do the testing and amniocentesis or CVS, which are two ways that. Testing is performed for prenatal diagnosis and some fine needle aspiration.
In some rare cases where we might need to look at the sort of bone marrow to help us. So most insurance companies cover the cost of genetic testing, especially for those who have a personal or strong family history that really fit the pattern or condition that is in question. So once we’ve done genetic testing, it’s then our job to contact the patient and disclose those results and explain them in detail. What did we find? What does it mean? Who else in the family might need
testing we go through?

Are there particular follow-up tests or screening measures or medical management recommendations that we're going to make based on the outcomes of genetic testing?

We hope to identify patient resources and or research opportunities that the individual or family might be eligible to participate in.

Now, given this genetic disease. We hope to explore who in the family is also at risk to have a genetic condition and explain who else is eligible in the family to do genetic
testing and when we can help to

coordinate that testing for those relatives.

And then we summarize a plan for follow up.

I think.

Also for genetic counselors,

we can act a little bit like

a patient navigator.

So now that we’ve identified a genetic risk,

how do we plug them into other high risk

providers to manage that genetic risk?

Now moving forward for them,

you know,

well,

it’s sort of might be a one

stop shop. As I say,

just have my patients in meeting with me.
I then help to get them plugged in with those resources, so that really have that long term management that can be so key for many of our patients. So now that you’ve learned a little bit of the baseline information about what it is to be a genetic counselor, how the field was developed and has grown overtime, we hope today to take you through some of the various specialties here at Yale, New Haven Health, Yale Medicine to understand a little bit more about what it
is from a day-to-day perspective
NOTE Confidence: 0.8573543
for our genetic counselors.
NOTE Confidence: 0.8573543
In each of these specialties.
NOTE Confidence: 0.8573543
So Next up will be Amy Kelly,
NOTE Confidence: 0.8573543
who is one of our cancer genetic
NOTE Confidence: 0.8573543
counselors in our smile,
NOTE Confidence: 0.8573543
cancer genetics and prevention
NOTE Confidence: 0.8573543
program at Yale, New Haven Health.
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Amanda, I was hoping
NOTE Confidence: 0.87444085
to ask you a question before just as we
NOTE Confidence: 0.87444085
have 3 minutes before Amy’s presentation.
NOTE Confidence: 0.87444085
One of our participants here had
NOTE Confidence: 0.87444085
brought up a good point and it
NOTE Confidence: 0.87444085
said when creating pedigrees,
NOTE Confidence: 0.87444085
does the family history just come
NOTE Confidence: 0.87444085
from conversations with the patient?
What is done in cases where there they might not be aware of these problems? And could you just elaborate on that? Yeah a lot of times we will ask patients to either contact relatives to learn information about their family history. Ahead of the appointment so that we have as much information going into the appointment as possible from a cancer perspective, we’re mostly dealing with adults, so they usually have a some information either about themselves or their family members.
But if not, can collect that ahead of time. Looking at things like the types of cancers in their family, the ages of onset now I'm sure in pediatric genetics and prenatal genetics might be a totally different in, you know what information we're collecting and who's able to share that information with them. If we're looking at a baby or child, they're certainly not going to be the ones who sharing the family history with the genetic counselor. And it's going to be the parents instead, so I think it's all in who is the patient,
how old they are, but we always encourage people to try and reach out to family members prior to the appointment to see if anyone might have similar features that are consistent with what we're being evaluated for in the genetic counseling session. Thank you.

And some of the other questions, or at least one of them had to do with cancer genetic counseling. So I'll take that as your cue to start your presentation.
00:27:59.022 --> 00:28:02.756 I am so excited to be talking to you today about cancer, genetic counseling.
NOTE Confidence: 0.8858859
00:28:02.756 --> 00:28:04.904 My name is Amy Kelly.
NOTE Confidence: 0.8858859
00:28:04.904 --> 00:28:06.964 I am a cancer genetic counselor at the smilow cancer genetics and Prevention program at Yale,
NOTE Confidence: 0.8858859
00:28:06.970 --> 00:28:09.184 and to give a very brief overview of cancer, genetic counseling and talk about my day today.
NOTE Confidence: 0.8858859
00:28:13.580 --> 00:28:16.233 But really, the goal of cancer, genetic counseling and testing is to identify a hereditary predisposition.
NOTE Confidence: 0.8858859
00:28:16.210 --> 00:28:18.946 Two cancer in an individual because that
could be helpful in terms of someone's cancer treatment? And testing at risk relatives. So if there is a hereditary predisposition to cancer, we know who to test in the family. And depending upon the hereditary predisposition, there are certain cancer screenings management. Preventive surgeries were essentially someone. Could be prevented from developing a cancer, or it could be caught at a much earlier and treatable stage.
To actually change outcomes.

So really, the goal of cancer, genetic testing and counseling is to work with families in identifying hereditary predispositions, coordinating follow-up, and talking about the benefit of cancer prevention and screening.

Now before I talk about specifically what I do today, I want to go over my background. I did my undergraduate degree at Suni Oswego. I got my Bachelors of Science in zoology and I graduated in 2014. I then took a year off after I graduated to apply for genetic
counseling programs and to sensually beef up my application.

Our Bay Path students later on today will talk to you more specifically about what they did, but just wanted to put in that is something I did as well. I graduated from the Icahn School of Medicine at Mount Sinai in New York City with My Masters in genetic counseling. I graduated in 2017 and I was board certified as of August 25th, and I remember the date because when you pass your boards,
you don’t forget that date.
And I’ve been with the Smilow Cancer Genics program since June of 2017.
Sir, so almost four years and my specialty is direct patient care and cancer only.
So Amanda was talking about single or multiple specialties, my focus and specialty is cancer.
So Amanda talked about the risk assessment, so with hereditary cancer predispositions we look for red flags that would appear in someone’s personal or family history.
That might increase suspicion of a hereditary predisposition to developing cancer.
So one of the biggest red flags that we might see is cancer diagnosed at early ages. It is dependent on cancer type, but when we see cancer at an unexpectedly young age, like for example breast cancer diagnosed at age 45 under 50, that is an earlier than expected age of a cancer diagnosis. Another one could be colon cancer diagnosis under 50, so seeing early age in a person or in someone’s relatives could increase suspicion of a hereditary.
Predisposition.

Another thing we see is you might see a family where there’s multiple relatives. Grandparents, aunts, someone’s parents with the same type of cancer like multiple odds with breast cancer. Or we can see associated cancers because what we know about hereditary cancer predispositions is there can be multiple cancer risks associated with a single previous position. So, for example, breast, ovarian, and pancreatic cancer in the family, even though they’re not the same cancer type. Seeing them in one family can increase my suspicion of a predisposition.
because we know there are single genes that can cause risk of multiple cancer types and other associated cancers. That we would talk about might be colon cancer and uterine cancer.

In rare cancers, not every single cancer that is rare is necessarily related to hereditary risk, but specific types of rare cancers or tumors might make me suspicious. So ovarian cancer, pancreatic cancer, and breast cancer in a man. Those are quite uncommon, and given that they are uncommon when we see them in a family we think about is
their hereditary predisposition causing that.

There's even rare tumors which are called paraganglioma’s in Pheochromocytomas, which I don't expect you to know or be able to pronounce when you see them for the first time, but rare there. Essentially rare tumors are usually benign that are found along the access of the body or for the pheochromocytomas found on the adrenal glands, so these are very specific type of tumors. But when your cancer genetic counselor, you know to look for specific tumor types that. If they’re rare, you know that,
OK, this might be indicative of predisposition. In cancers that are unusually aggressive, so specifically prostate cancer, which is common in men to have, but it’s less common for that cancer to become metastatic, that cancer to become meta, or again kind of similar but if some one person has bilateral breast cancer or colon and uterine cancer, we’re doing a family tree or pedigree.
that might make me more suspicious
NOTE Confidence: 0.84668714
that could have a predisposition.
NOTE Confidence: 0.84668714
And finally,
NOTE Confidence: 0.84668714
individuals of Ashkenazi Jewish ancestry,
NOTE Confidence: 0.84668714
we do see a higher prevalence of
NOTE Confidence: 0.84668714
hereditary breast and ovarian cancer
NOTE Confidence: 0.84668714
syndrome in those individuals,
NOTE Confidence: 0.84668714
so we do take into account ancestry
NOTE Confidence: 0.84668714
during the risk assessment.
NOTE Confidence: 0.81646645
So time for this. A brief poll.
NOTE Confidence: 0.81646645
I think Alex will pull it up so a is
NOTE Confidence: 0.81646645
corresponding to the pedigree below.
NOTE Confidence: 0.81646645
Right below it B is corresponding to
NOTE Confidence: 0.81646645
the pedigree right above it and sees
NOTE Confidence: 0.81646645
corresponding to the pedigree right below it.
NOTE Confidence: 0.81646645
So just little just a little fun fun pull.
Which of these individuals are identical, identified by the arrow pointing below them, is most likely to have a hereditary cancer predisposition? So based on what I talked about with red flags. Which of these individuals needs pedigrees would you be most suspicious of having a hereditary cancer risk. And I’ll just give a couple. 30 seconds or so, Alex, and tell me when it’s all set. Alex and tell me when it’s all set. The votes are pouring in. Let’s give it maybe another 10 seconds, alright?
00:35:09.070 --> 00:35:11.109 Just so folks can have some time to think.
NOTE Confidence: 0.89417976

00:35:24.550 --> 00:35:28.960 Let’s see. So most people said.
NOTE Confidence: 0.89417976

00:35:28.960 --> 00:35:32.848 Said said be which which I know I can see
NOTE Confidence: 0.89417976

00:35:32.848 --> 00:35:35.952 what from my perspective I would say see.
NOTE Confidence: 0.89417976

00:35:35.960 --> 00:35:38.936 Just because there is one person who was
NOTE Confidence: 0.89417976

00:35:38.936 --> 00:35:41.408 diagnosed quite young with breast cancer.
NOTE Confidence: 0.89417976

00:35:41.410 --> 00:35:44.511 But I do see where you’re with with
NOTE Confidence: 0.89417976

00:35:44.511 --> 00:35:47.178 B where there are two women with
NOTE Confidence: 0.89417976

00:35:47.178 --> 00:35:49.700 breast cancer but something that I
NOTE Confidence: 0.89417976

00:35:49.700 --> 00:35:52.214 also think about is that especially
NOTE Confidence: 0.89417976

00:35:52.293 --> 00:35:54.538 breast cancer at more typical.
NOTE Confidence: 0.89417976

00:35:54.540 --> 00:35:58.077 Ages, which would be over the age of 50,
NOTE Confidence: 0.89417976

00:35:58.080 --> 00:36:00.402 when a woman’s after menopause in
NOTE Confidence: 0.89417976

00:36:00.402 --> 00:36:02.803 a couple relatives is not very
NOTE Confidence: 0.89417976

00:36:02.803 --> 00:36:05.470 suspicious of a predisposition, but.
NOTE Confidence: 0.89417976

00:36:05.470 --> 00:36:07.570 Definitely you know it is something
that can can raise a flag,
but also, especially if it wasn’t multiple generations out.
Probably make me a little bit more suspicious for the case of B.
So let’s talk about it just to brief briefly talk about a typical day with cancer, genetic counseling.
So I think the best way to illustrate this is just talk through an actual case that I saw.
So when I pull up the pedigree, I know it looks like a lot,
but the first thing I do when I see a case is a lot of what we...
do is we are doing chart prep.

NOTE Confidence: 0.8569151

I'm looking at this patient’s medical history.

NOTE Confidence: 0.8569151

This patient too with the big yellow arrow.

NOTE Confidence: 0.8569151

There she is a 63 year old female who was diagnosed with breast cancer at 56.

NOTE Confidence: 0.8569151

So I’m looking at pathology records and looking at her treatment I’m looking at other cancer screening like colonoscopy reports does.

NOTE Confidence: 0.8569151

Did you see a dermatologist?

NOTE Confidence: 0.8569151

Does she take any hormones, any major gynecological surgeries?

NOTE Confidence: 0.8569151

I’m taking all this in sharp prep and then I take what I know from the family history.
A prior to the appointment, but during the appointment the mid we collect the majority of the family history where we ask about cancer diagnosis and if there is a cancer diagnosis at what age where they diagnosed. In this family she had never had genetic testing before, but she was prompted because she has a cousin on her mom’s side who had breast cancer, who reports has an ATM mutation. ATM is a moderate risk breast cancer gene which possibly could explain why her cousin developed breast cancer.
cancer so she was concerned about her risk of having that seem mutation. But when we're looking at the family tree, of course we take limitations into account. I did not have records confirming the genetic test results, but per the patient report, her aunt so her cousins mother tested negative and her uncle who's not a blood relative. So for Cousins father tested positive for the ATM mutation. So we had this conversation where we don’t have records, but it seems like you’re not at
00:38:25.255 --> 00:38:27.870 risk for having this ATM mutation.

00:38:27.870 --> 00:38:30.734 Also reassuring that her mom is living 83,

00:38:30.740 --> 00:38:32.540 doing well other family history.

00:38:32.540 --> 00:38:34.598 I would look at is you

00:38:34.598 --> 00:38:36.490 know on her mom’s side.

00:38:36.490 --> 00:38:40.774 There is an ovarian cancer

00:38:40.774 --> 00:38:42.969 and we talked about breast and

00:38:42.970 --> 00:38:44.542 ovarian cancer can be associated.

00:38:44.542 --> 00:38:46.414 But a little bit distant

00:38:46.420 --> 00:38:48.312 to her in a great aunt,

00:38:48.312 --> 00:38:50.194 so we did talk about that.

00:38:50.194 --> 00:38:51.450 That you know on moms side

00:38:51.450 --> 00:38:53.508 but a little bit distant to you

00:38:53.508 --> 00:38:55.437 and this ATM mutation seems like
it’s not a risk of having it.

But we always take both sides the family into account, right?

So on Dad side, we look.

And as I said,

prostate cancer is common in men,

but less common to be meta static,

she reports her uncle died

In Dad side is small.

He only had one brother.

So really when we do this assessment,

we’re looking at individuals,

their ages of diagnosis.

What is increasing suspicion and

my patient was not diagnosed at
a young age right now under 50, but we talked about, you know, given that your uncle has metastatic prostate cancer, your history of breast cancer definitely makes sense to do some testing. So we talked about genetic testing, which I know this is all coming all at once. But when we talk about genetic testing, you know we talk about the risks and benefits of genetic testing. Oftentimes we do now in the era of cancer, genetics is we do more comprehensive we call panel testing.
So looking at genes related to hereditary breast ovarian cancer, uterine cancer, colon cancer, and other cancers so it can be quite a broad range of cancer risk that we're looking at and we talked through the patient herself, what it means for her relatives and what types of cancer screening and prevention would be. She might be eligible for or recommended to pursue, or what her relatives might be recommended to pursue.
And I know this is a list of long genes, but some people might recognize BRCA one and BRCA two related to hereditary breast and ovarian cancer syndrome, colloquially called the Braca genes. These are often the most common genes people know about. And but there are other genes related to risk of breast cancer, including high risk of breast cancer. Lynch syndrome is a syndrome that might be included related to mainly risk of colon and uterine cancer engines.
related to risk of ovarian cancer. So again this is not a test. Not expecting to know all these genes but we look when we look at these jeans were essentially looking at as many as possible to rule out as many. Possible predispositions to cancer, and we talk about the risk and benefits of doing testing and this patient she wanted to pursue testing. I coordinate that with her Center for the blood work sent into the lab, the order, placed the order, sending all the associated paperwork for insurance purposes, and then I got her results.
And she was positive for a mutation in BRCA one. Which, if we think back to the family tree her dad side was small, BRCA one does have a slightly increased risk for men for prostate cancer, so possibly could explain why her uncle had prostate cancer. You can see there. There’s another type of result called a variant of uncertain significance which. All genetic counselors deal with is.
just variation in a gene that has not yet been classified to cause disease or not.

The lab needs to collect more information, but it was not clinically actionable.

So for this patient you know it was a very thorough conversation about calling the patient with the results explaining what that means, explaining recommendations for her, and then referring to appropriate providers.

So with a BRCA one mutation there is a recommendation for bilateral self pinggu for ectomy to remove the ovaries and fallopian tubes to prevent against ovarian cancer risk.
My patient still had her ovaries and she was only 63, so something that I placed a referral for her.

To discuss that surgery.

And then meeting with the breast and colleges to talk about her risk of possibly developing a second breast cancer and how she would like to proceed with high risk screening or possibly a prophylactic mastectomy to remove the breasts.

And some of her relatives did not live in the area,
so I was able to look up online where her sister with her sister lived. Find genetic counselor contact there and send it to the patient and then help coordinate relatives. I live in the area explaining you know this is our program. This is our fax number. Have your relatives primary care providers fax us a referral. So really coordinating those information to get the relatives in for testing. Documenting phone conversations. You know a lot of when we talk to a patient, see a patient. It's all documented in the medical record.
00:43:53.830 --> 00:43:55.280 Notifying the referring provider of
the results just so the provider
is aware and then can be plugged
into the patients treatment or
screening plan right away.

00:44:00.429 --> 00:44:02.115 The results are scanned to the medical
record so that can be included,
and then I write up a summary.

00:44:08.120 --> 00:44:10.031 I write up a summary letter which
summarizes the results in detail and
include a family notification letter,
which is just a cover sheet that
can be sent to relatives.

00:44:16.910 --> 00:44:19.268 Might help aid in giving them
information and giving them ways
to pursue their own testing.
And at our program we present all of our cases at a case conference where we review all the cases together and it’s great 'cause we can get multiple perspectives on from genetic counselors from a genetic cyst. Breast specialists that we are part of a program gastroenterologist. So really, really, just discussing these cases as a team. Which I find very helpful.
So this is 1. This is 1 case, you know, just one case in the life of a cancer genetic counselor. But I think this essentially is how I proceed.
NOTE Confidence: 0.86143327
00:44:57.795 --> 00:45:01.590 with all my cases and all my patients.
NOTE Confidence: 0.86143327
00:45:01.590 --> 00:45:04.058 So thank you so much for your attention.
NOTE Confidence: 0.86143327
00:45:04.060 --> 00:45:05.605 I think we’re just just
NOTE Confidence: 0.86143327
00:45:05.605 --> 00:45:07.150 a little bit over time,
NOTE Confidence: 0.86143327
00:45:07.150 --> 00:45:09.922 right on time I will be at the end.
NOTE Confidence: 0.86143327
00:45:09.930 --> 00:45:12.584 If you have any questions, I don’t get too.
NOTE Confidence: 0.86143327
00:45:12.584 --> 00:45:15.022 I will be at the end for the
NOTE Confidence: 0.86143327
00:45:15.022 --> 00:45:16.418 general Q&A at 3:25.
NOTE Confidence: 0.86143327
00:45:16.420 --> 00:45:18.022 That’s also my email if I
NOTE Confidence: 0.86143327
00:45:18.022 --> 00:45:20.130 do not get to your question,
NOTE Confidence: 0.86143327
00:45:20.130 --> 00:45:21.992 write it down and you can just
NOTE Confidence: 0.86143327
00:45:21.992 --> 00:45:23.840 send me an email directly.
NOTE Confidence: 0.86143327
00:45:23.840 --> 00:45:26.304 But thank you so much for your time.
NOTE Confidence: 0.826667
00:45:29.350 --> 00:45:32.820 Thanks Amy, that was a great presentation.
NOTE Confidence: 0.826667
00:45:32.820 --> 00:45:35.290 As a fellow genetic counselor,
Genetic counselor, accurate,

Very accurate and now we have Julie Mclin who will be talking about reproductive genetics, Julie. OK.

Everyone can see my screen. Perfect.

So again, my name is Julie McClain. I'm a reproductive genetic counselor at Yale and I've worked at maternal fetal medicine for a little over four years now. And over 90% of the individuals I work with are considered high risk. With special maternal and or fetal concerns, I previously worked at two different medical centers specializing in prenatal reproductive, cancer, and pediatric and adult general.
genetic counseling services. So I feel fortunate that I've had a chance to experience many different specialties. And overall my jobs have predominantly involved direct patient care. But I have also engaged in various clinical research studies as they came up in the department that I was working. In addition, in the past I served as the Director of clinical Training and the Master of Science in Genetic Counseling at the Icahn School of Medicine at Mount Sinai and in the
past 20 years I’ve had the absolute pleasure of supervising over 150 different genetic counseling interns that have been enrolled in various training programs across the US, and they have kept me on my toes, and I think they’ve taught me as much as hopefully I have taught them.

So terminology sometimes you’ll hear people use the word prenatal or reproductive and they are referring to something slightly different for prenatal, or existing before birth, and prenatal care is the health care women receive during their pregnancy.
Some genetic counselors refer to themselves as prenatal genetic counselors because they are predominantly working with individuals and their partners while the pregnancy is in progress. And other genetic counselors refer to themselves more broadly as reproductive genetic counselors because they are collectively working with individuals who are pregnant, planning to become pregnant and or interested in discussing concerns that arose during a previous pregnancy. Genetic counselors have played an important role in supporting...
patients to make informed and value consistent reproductive decisions. Since prenatal screening and diagnosis first became possible.

Some common reasons for referral to my clinic are advanced maternal or paternal age, meaning that the individual is 35 years or older at the time of delivery. Personal or family history of a known or suspected genetic condition, intellectual disability or a congenital structural difference such as a congenital heart defect or cleft lip or palate, missing kidney, etc.

In a typical fetal ultrasound finding or prenatal screening or diagnostic results.
Teratogen counseling, which is when there is concern about whether a medication, drug, alcohol, or environmental exposures prior to or during pregnancy may impact fertility, fetal development and or pregnancy outcome. The individual is a carrier for an inherited condition or chromosome rearrangement. They may have a history of recurrent pregnancy loss or subfertility, or infertility. Sometimes people are planning to have assisted reproductive technology.
to achieve pregnancy or they are planning to donate eggs or sperm, either to someone that they know or anonymously or receive donor eggs or sperm. Someone has a multifetal pregnancy like twins, triplets, quadruplets. People who have are from a specific ethnic or racial group or geographic area where there might be a higher incidence of certain conditions, such as Tay Sachs disease, sickle cell disease, or inherited forms of anemia. And the people are interested in having genetic carrier screening. And then those individuals just have
a general interest in discussing their test options, so there's not a particular concern, but they would like to know what is available to them or their reproductive partners prior to or during pregnancy, and that could include the genetic carrier screening. Screening or diagnostic testing for chromosome conditions etc. So many reasons for referral but. There are some common things that happen during a typical counseling session. So that would include obtaining medical, reproductive and environmental.
quirks pose histories.

Obtaining a family history of at least three generations, time permitting.

And documenting all the health concerns and genetic conditions that are reported.

Explaining the risk for or the diagnosis of a genetic disorder or congenital condition.

Educating about the inheritance of the recurrence risk.

Talking about the benefits, limitations and risks of their screening and diagnostic test options.

Perhaps talking about the prognosis of a specific condition, the management or treatment?
Prevention and research options. We often are interpreting results of tests, discussing the implications, and talking about possible next steps. We educate them about assisted reproductive technologies because we may only be meeting with them once, so we perhaps are talking to them about. The fact that their fetus has been diagnosed with a particular condition but before they leave, we want them to know what they may want to consider prior to a future pregnancy and not depend on the fact that someone else in their
life will relay that information.

And overall we want to support

the individual, the couple or the family with their

reproductive decision-making.

With regards to the information that

they receive and their personal,

religious and their ethical and moral values.

So the main goals of our genetic counseling

sessions include what I think starting

because if we don’t establish repor,

it’s very hard to accomplish all of

the other goals of the session if not

impossible in some circumstances.

We want to assess their needs,
exchange and discuss relevant information,

so we want to provide individualized education,

not make them feel that we’re lecturing to them, or you know,

just going through a script that we provide to every patient.

We try to elicit their thoughts and feelings, support and promote their autonomy and making informed decision making.

We provide short term psychosocial support and patient advocacy and we identify situations in which additional medical or psychological referrals or support services might be indicated.
We try to identify when someone might benefit from a support or advocacy group, individual or group counseling, and when we need to make specialty referrals to other departments and sometimes to other genetic counselors in other specialties. We try to serve as an ongoing resource as their needs and desires evolve overtime, so establishing rapport is key in order to encourage them to call us back if they have additional questions or new questions or concerns in the future. What is the typical day like for me? Well, there are two full time reproductive genetic counselors at Yale MFM and
00:54:18.580 --> 00:54:21.107 at present we do see over 90% of

00:54:21.107 --> 00:54:24.089 our patients via video Tele Health.

00:54:24.090 --> 00:54:27.240 We each have up to four patients per day.

00:54:27.240 --> 00:54:30.006 And the majority of patients are

00:54:30.006 --> 00:54:32.360 scheduled in advance and given

00:54:32.360 --> 00:54:34.928 appointments within 24 to 72 hours

00:54:34.928 --> 00:54:37.999 of when they contacted our office.

00:54:38.000 --> 00:54:39.532 Prior to the session,

00:54:39.532 --> 00:54:41.064 pertinent records are reviewed.

00:54:41.070 --> 00:54:42.960 We do the appropriate research

00:54:42.960 --> 00:54:45.306 and this can take anywhere from

00:54:45.306 --> 00:54:47.980 approximately 10 minutes to over an hour,

00:54:47.980 --> 00:54:51.076 depending upon the indication for counseling.

00:54:51.080 --> 00:54:53.565 Some of our patients are added on

00:54:53.565 --> 00:54:56.013 to the schedule at the last minute
and seeing 5 to 10 minutes after they've been referred.

For example, there could be a patient who came in for a routine ultrasound and unexpectedly found out that the fetus has structural concerns and suddenly they're being referred to a genetic counselor to talk about what we seen, what it could mean, and what additional testing might be available to them to try to find out. The underlying cause of what we've seen in order to guide them with regard to prognosis and the chance of a baby having a similar
In those particular sessions where patients are added on at the last minute, as you can imagine, they’re usually very understandably upset. They often have difficulty concentrating and reduced recall after the session. And another challenge is that the genetic counselor often has very minimal prep time and may need to contact the patients after the sessions in order to relay important information that wasn’t available at the time of the meeting. So this is another time where
00:56:06.618 --> 00:56:09.058 establishing repor is key and kind
NOTE Confidence: 0.8428075
00:56:09.058 --> 00:56:11.606 of being with the patient where they
NOTE Confidence: 0.8428075
00:56:11.606 --> 00:56:14.895 are in that moment and assessing how
NOTE Confidence: 0.8428075
00:56:14.895 --> 00:56:17.966 much follow-up counseling might be warranted.
NOTE Confidence: 0.8428075
00:56:17.966 --> 00:56:20.881 The average reproductive genetic counseling
NOTE Confidence: 0.8428075
00:56:20.881 --> 00:56:24.000 session takes about 45 to 60 minutes.
NOTE Confidence: 0.8428075
00:56:24.000 --> 00:56:25.308 And after the session,
NOTE Confidence: 0.8428075
00:56:25.308 --> 00:56:26.616 test orders are placed,
NOTE Confidence: 0.8428075
00:56:26.620 --> 00:56:27.860 we write a console.
NOTE Confidence: 0.8428075
00:56:27.860 --> 00:56:30.245 Note that we send to both the
NOTE Confidence: 0.8428075
00:56:30.245 --> 00:56:32.485 referring provider and the patient.
NOTE Confidence: 0.8428075
00:56:32.490 --> 00:56:34.696 And we may have to conduct
NOTE Confidence: 0.8428075
00:56:34.696 --> 00:56:35.432 additional research.
NOTE Confidence: 0.8428075
00:56:35.432 --> 00:56:37.640 Patients might need to be recontacted,
NOTE Confidence: 0.8428075
00:56:37.640 --> 00:56:39.655 and this follow-up can collectively
NOTE Confidence: 0.8428075
00:56:39.655 --> 00:56:42.053 take anywhere from 15 to 20
minutes to well over an hour,

And the remainder of my day is spent returning emails and telephone messages from patients and their clinical providers answering questions from my colleagues and community providers.

Conducting research for current or future patients calling out test results.

Preparing upcoming lectures.

Because I lecture every two weeks to the maternal fetal medicine fellows.

And I try to obtain data for ongoing clinical research studies.

I perform managerial duties, etc.
So my day can be fairly busy, even if on the books it may say I only have 1, two, or three patients sometimes. Even with no patience, the day can be incredibly interesting and busy. Overall teamwork is essential, although I work independently as I provide direct patient care. I’m fortunate to work with a much larger team and maternal fetal medicine. I work with another genetic counselor. Administrative assistance, maternal fetal medicine, attendings, and fellows.
Nurses, including a really special nurse who manage, is the fetal care center program and helps us to coordinate specialty consults and testing for pregnant women. We have a part time social worker who is available usually within minutes. If we have a patient that we're working with that we feel has special needs, that really should be addressed prior to the person exiting our department and getting into their car. I also routinely refer and consult with clinical geneticists in.
So I wanted to talk about one case example that I think highlights are genetic counselors roles and how a patient’s needs and desires may evolve over time. And some background to prepare you for that case is little genetics 101.

It’s estimated that humans have approximately 20 to 25,000 protein coding genes. And there’s something called expanded genetic carrier screening that is non targeted. Carrier screening that evaluates an individual’s carrier state for multiple conditions at once regardless of ethnicity or racial background.
Some labs offer genetic carrier screening for hundreds of genes on a single test panel, and this is something that many obstetric providers offer to all of their patients, particularly if they’re in the first or early second part of their trimester or ideally, prior to becoming pregnant. So I do have a question for the audience. An individual in the general US population has a what percent chance of being found to be a carrier for at least one condition on a panel of 274 genes. Less than one percent 5%. 37% or 64%.
01:00:25.620 --> 01:00:29.990 good spread and a lot of you. Were correct.
NOTE Confidence: 0.89498824
01:00:33.300 --> 01:00:35.670 So the correct answer was 37%
NOTE Confidence: 0.89498824
01:00:35.670 --> 01:00:38.650 in a large study were found to
NOTE Confidence: 0.89498824
01:00:38.650 --> 01:00:41.650 be a carrier for one condition.
NOTE Confidence: 0.89498824
01:00:41.650 --> 01:00:44.386 Excuse me, 64 percent is the correct answer.
NOTE Confidence: 0.89498824
01:00:44.390 --> 01:00:47.190 37% were found to be a carrier
NOTE Confidence: 0.89498824
01:00:47.190 --> 01:00:48.390 for one condition.
NOTE Confidence: 0.89498824
01:00:48.390 --> 01:00:50.886 But the question was at least one condition,
NOTE Confidence: 0.89498824
01:00:50.890 --> 01:00:52.857 so overall this is with the spread
NOTE Confidence: 0.89498824
01:00:52.857 --> 01:00:55.450 for how many were found to be a
NOTE Confidence: 0.89498824
01:00:55.450 --> 01:00:56.802 carrier for multiple conditions,
NOTE Confidence: 0.89498824
01:00:56.810 --> 01:00:59.618 which is not as rare as people would think.
NOTE Confidence: 0.8802339
01:01:01.710 --> 01:01:03.320 So I realize that I’m going a
NOTE Confidence: 0.8802339
01:01:03.320 --> 01:01:04.616 little over, so I’m just going
NOTE Confidence: 0.8802339
01:01:04.616 --> 01:01:06.539 to pick up my pace a little bit.
NOTE Confidence: 0.88858265
01:01:07.880 --> 01:01:09.100 I had a 41
01:01:09.100 --> 01:01:10.918 year old woman who was referred
01:01:10.918 --> 01:01:11.827 for preconception counseling.
01:01:11.830 --> 01:01:14.002 After she had expanded genetic carrier screening that revealed that she is a carrier
01:01:16.700 --> 01:01:18.482 And as with many genetic conditions, particularly those that are inherited
01:01:18.490 --> 01:01:21.196 which Wilson send Wilson diseases, carriers are not predicted to be symptomatic,
01:01:21.200 --> 01:01:23.420 so she was not aware.
01:01:23.420 --> 01:01:25.640 in an autosomal recessive way
01:01:25.707 --> 01:01:27.957 which Wilson send Wilson diseases,
01:01:27.960 --> 01:01:31.117 carriers are not predicted to be symptomatic,
01:01:31.120 --> 01:01:33.990 so she was not aware.
01:01:33.990 --> 01:01:36.751 She was referred for genetic counseling by
01:01:36.751 --> 01:01:38.379 her reproductive endocrinologist because
01:01:38.379 --> 01:01:41.074 she was planning to pursue in vitro fertilization due to secondary infertility.
An the ender Chronologist wanted her to discuss this in advance. She and her 49 year old partner had two previous spontaneously conceived pregnancies that resulted in full term deliveries. They have two young sons, two years old and five year olds, five years old and they were reported to be healthy and developmentally typical. And they’ve been trying to conceive the third pregnancy for over one year without success. So Wilson Disease is a disorder of copper metabolism that can present with liver, neurologic or psychiatric disturbances, or a combination of all three. And the symptoms May 1st present between
age 3 to greater than 50 years of age, and the symptoms can vary among and within families. The there is treatment that exists that can prevent the development of liver, neurologic and psychiatric findings in asymptomatic affected individuals. And as I mentioned, Wilson disease is inherited in an autosomal recessive manner. If both members of the couple are carriers with each pregnancy, there would be a 25% chance to have an affected child who inherits one copy of the nonworking gene from each parent.
A 50% chance to have a child that is an unaffected carrier and a 25% chance to have a child that is an unaffected non carrier.

And this table shows you quickly what the carrier frequency is among certain populations, the worldwide carrier frequency is approximately 1 in 90.

So during the genetic counseling session, I obtained the family pregnancy and medical histories. We discussed the clinical features, an autosomal recessive nature, Wilson disease we talked about, currently available treatment and
preimplantation prenatal and postnatal diagnostic test options.

And I recommended that her partner have carrier screening for Wilson disease as a non Jewish Caucasian in the general population. He had a one in 90 chance of being a carrier. So prior to him having testing, I did a little math with them and said that their chance of having a child with Wilson disease without having his screening results was. One which is her chance of being a carrier times one in 90. His chance of being a carrier.
times one and four.

The chance that if they were both carriers they would both transmit the disease gene in one pregnancy which came to one out of 360 or .28%.

A large part of our session was spent with the patient and her partner expressing how much they regretted that she had pursued expanded carrier screening because they felt that.

Her being found to be a carrier was unnecessarily delaying their plans to become pregnant via IVF, and they had a lot of anger and frustration and I tried to listen and validate their feelings,
but also explain why they had been referred and help them to understand why their provider thought this was an important step.

The husband elected to have carrier screening. He was found to be a carrier for Wilson disease and now their reproductive risk is one in four or 25%. So we spent the next session discussing their options for having in vitro fertilization with some targeted pre-implantation genetic testing. Which means that they test a fertilized egg for this specific genetic condition prior to transferring unaffected.
embryos into the woman’s body.

And the couple requested that their two children be tested for Wilson disease and a referral to the Department of Genetics was made. Testing of the minor children was coordinated by a genetic counselor, and clinical geneticists in that department and genetic testing revealed that both children are affected with Wilson disease. They were subsequently referred to appropriate specialists for further discussion regarding recommended lifelong treatment and surveillance, and the couple elected to postpone.
01:06:02.140 --> 01:06:04.540 expanding their family until after
NOTE Confidence: 0.85637105
01:06:04.540 --> 01:06:06.982 the immediate medical needs of
NOTE Confidence: 0.85637105
01:06:06.982 --> 01:06:08.770 their children were addressed.
NOTE Confidence: 0.85637105
01:06:08.770 --> 01:06:09.210 Just
NOTE Confidence: 0.8835299
01:06:09.210 --> 01:06:10.539 as a note,
NOTE Confidence: 0.8835299
01:06:10.540 --> 01:06:11.860 we don’t typically
NOTE Confidence: 0.8835299
01:06:11.860 --> 01:06:14.070 test minors for genetic conditions,
NOTE Confidence: 0.8835299
01:06:14.070 --> 01:06:17.422 but there are exceptions to that when there
NOTE Confidence: 0.8835299
01:06:17.422 --> 01:06:20.963 is treatment available so that knowing the
NOTE Confidence: 0.8835299
01:06:20.963 --> 01:06:23.583 diagnosis prior to becoming symptomatic.
NOTE Confidence: 0.8835299
01:06:23.590 --> 01:06:27.475 And in situations where they may become
NOTE Confidence: 0.8835299
01:06:27.475 --> 01:06:30.040 symptomatic during childhood is a real.
NOTE Confidence: 0.8835299
01:06:30.040 --> 01:06:33.586 Concern, that is when we would
NOTE Confidence: 0.8835299
01:06:33.586 --> 01:06:36.650 absolutely consider testing a minor.
NOTE Confidence: 0.8835299
01:06:36.650 --> 01:06:40.604 So in conclusion, pregnancy can be
NOTE Confidence: 0.8835299

110
many things planned and unplanned, desired or undesired. Wonderful, exciting, scary, anxiety provoking, joyful, depressing. Medically or genetically uneventful or complicated, so many things, and sometimes many of these descriptors are in the same pregnancy. Reproductive genetic counselors have both the responsibility and the privilege of educating and supporting patients who are faced with making difficult decisions prior and during pregnancy and working with this patient population can be
challenging and extremely rewarding.

Thank you very much.

Thank you Julie. That was a great presentation. I’m wondering that I went over. That’s OK, there’s a lot to talk about. I’m wondering if I could enlist you to help. There’s a couple of questions that I think would be best suited for you, but will let Arpita get on with her cardiology presentation if I could just ask you to maybe help me answer those. Yes, it could be the best person. I will...
take a peek, thanks.

Alright, can you hear me OK? Perfectly,

they and thank you to
everyone for being here. I hope you’re having a great day.

Great afternoon of learning so far.

I’m going to try and not speak too fast,

I also know who be mindful of the time.

I’ll give you an overview of my background

a little bit about just how my day or week

or month is structured in cardiology.

An example from genetic counseling in clinic,

and if we still have time we can go over

an example from the research that I do.

I graduated from the UC Irvine
01:08:40.274 --> 01:08:41.486 program in 2014.

01:08:41.490 --> 01:08:44.258 Before that I did my schooling in India

01:08:44.258 --> 01:08:47.139 and my undergrad degree from Dubai.

01:08:47.140 --> 01:08:49.155 I mean, I'm technically an

01:08:49.155 --> 01:08:50.364 engineer in biotechnology,

01:08:50.370 --> 01:08:54.006 but I have no engineering

01:08:52.390 --> 01:08:54.010 skills at this point.

01:08:54.010 --> 01:08:57.130 It’s all genetic counseling.

01:08:57.130 --> 01:09:02.003 After graduating,

01:09:02.003 --> 01:09:04.375 I worked with some of these lovely folks at

01:09:04.375 --> 01:09:07.350 the Smilow Cancer Genetics and Prevention

01:09:07.350 --> 01:09:10.446 program for a little over 2 years.

01:09:10.446 --> 01:09:14.295 I did give my board exam in 2015 and

01:09:14.295 --> 01:09:16.575 then from 2017 I’ve been in internal

01:09:16.575 --> 01:09:19.370 medicine and cardiology specifically

NOTE Confidence: 0.8689328
in the cardiovascular genetics program.

This pie chart shows how my time is supposed to be spent. You know most of it is supposed to be in patient care in research, about 40% each, and then the remaining split between program development and education. Patient care does overflow, so I don’t end up dividing my time as equally as I’m supposed to. Inpatient care I see patients in the inpatient setting, so if they’ve been admitted to the hospital because of a heart attack or a sudden cardiac arrest,
or if win or if they've been referred outpatient so their physician or
their general cardiologists picked up on either family history or a personal diagnosis and specifically referred the patient to see one of us in cardiovascular genetics.

I work with one position primarily, but we’ve expanded our services in the last couple of years, and so in a given month I have four to five clinic days, and so that’s not a lot when you think of the number of days, but each day we see anywhere between
8:00 and 12:00 patients, and so on.

Mondays I have a genetic counselor only clinic,

which is primarily a phone konsult for patients or family members.

And then on Fridays I’m in the MD clinic where you know both of us have to see the patient.

We have 40 minutes to complete the konsult.

We see primarily adults, but we do see children there.

Either the children off our patient or their children, you know referred by the Feed specialty group,

and then in our clinics we see all
indication I'll talk a little bit more about that later on.

There are some cardio GCS that specialize or, you know, tend to focus on one indication within cardiology instead of seeing all indications. But mine is a bit more general.

For research, it really depends on the project. There are some projects where I am involved from start to finish, but then there are other projects where I only do part of it and so I help develop or manage research.
protocols either for the physician
that I work with or help some other
groups figure out how to get data.
Times consenting patients
for these research studies,
I'm sometimes analyzing
their broad genetic data,
which is the an Excel sheet for the
most part that you get from sequencing.
In this excel sheet can have anywhere
between 60,200 and 20,000 rows.
You can narrow it down using
certain protocols,
but you know we would analyze
that to find new jeans or new
mutations for certain indications.
I mean then, sometimes I’m helping draft a paper or a poster. Sometimes I’m only doing the statistical analysis and not really drafting the manuscript. So it depends on the project. Hope so. For program development, the two main things I tend to do our train admin because a number of referring providers have gone up by help. You know. Develop triage Ng workflows and help them figure out you know which...
patient is appropriate for which clinic, and then we have a weekly case conference that I lead about 15 different positions and advanced practice providers. Attend that, but up to 27 are part of it and so this is. To discuss important or difficult cases, come to you, know a consensus. If providers have differing opinions on how to follow somebody, I mean, so that’s every Wednesday for an hour. And then in terms of education or supervision, this might include clinical rotations for graduate students.
For example, the Bay Path program sends new students once in awhile. It might include genetics, education for postdoctoral fellows who are working on projects that have a genetics component. So the physician that I work with has a cardiology lab with several postdocs and PhD students. So then I would be involved from an education perspective. And then occasionally mentoring or being part of the committee for a grad students' pieces or Capstone project.
I'll talk a little bit more about the clinical indications it used to be divided into Mendelian, which is a single gene cause of disease and non Mendelian where there are multiple factors that can increase the chance for somebody to have heart disease. But the lines are blurring many of the Mendelian conditions are being found to have multiple components in the risk, and so you may have heard of Marfan syndrome. People tend to hear about most commonly a lot of times you know. People are told.
If you're tall and thin, go get evaluated for Marfan syndrome, but there's a lot more to it than that. Connective tissue disorders essentially include your bone and your joints in your skin, and there might be complications with bleeding in some forms. Cardiomyopathies are structural heart diseases, so the heart muscle itself may be too big or too thin or too weak to pump blood efficiently. Arrhythmias are most commonly called palpitations or A-fib.
but there are specific inherited conditions where you could have cardiac based, fainting or cardiac arrests. Familial hypercholesterolemia is the most well known or well described inherited heart disease where your cholesterol tends to be really high from a really young age, usually above 190 MG per DL. So that’s you know it can be high, but that doesn’t mean it’s familial hypercholesterolemia. There are certain cut offs that we use for risk assessment and then there are other syndromes where the cardiac component is just one
part of it and so we might do the.

Genetic counseling or the genetics evaluation with the cardiac part in mind and then refer to general genetics for more long term follow-up.

Non mendelian examples. Hypertension or high blood pressure is a common one coronary artery disease without familial hypercholesterolemia is something we see quite often, and then there are other structural heart diseases that come across we I personally don’t do congenital heart defects in the newborns or infants. That’s something either general
01:16:25.150 --> 01:16:27.525 genetics or Pediatrics would do.
NOTE Confidence: 0.83698463
01:16:27.525 --> 01:16:31.535 I believe I don’t do congenital
NOTE Confidence: 0.83698463
NOTE Confidence: 0.83698463
01:16:32.950 --> 01:16:35.218 Now that we’ve had some time to
NOTE Confidence: 0.83698463
01:16:35.218 --> 01:16:38.089 look at a few different examples,
NOTE Confidence: 0.83698463
01:16:38.090 --> 01:16:42.035 I think it’s a good time for the first pole.
NOTE Confidence: 0.83698463
01:16:42.035 --> 01:16:44.602 So when you think of all the
NOTE Confidence: 0.83698463
01:16:44.602 --> 01:16:46.780 different types of heart diseases,
NOTE Confidence: 0.83698463
01:16:46.780 --> 01:16:48.360 whether it’s a cardiomyopathy
NOTE Confidence: 0.83698463
01:16:48.360 --> 01:16:49.539 or high cholesterol,
NOTE Confidence: 0.83698463
01:16:49.540 --> 01:16:51.520 what is the estimated prevalence?
NOTE Confidence: 0.83698463
01:16:51.520 --> 01:16:54.453 How common do you think these conditions
NOTE Confidence: 0.83698463
01:16:54.453 --> 01:16:57.359 are in the general population?
NOTE Confidence: 0.83698463
01:16:57.360 --> 01:17:01.056 Is it quite rare that one in 10,000?
NOTE Confidence: 0.83698463
01:17:01.060 --> 01:17:06.140 Is it one in 1001 and 500 or one and 200?
NOTE Confidence: 0.83698463
01:17:06.140 --> 01:17:07.520 Your best guess?
We get five more seconds.

Results are coming in so most of you said one in 500. The actual numbers one and 200. It’s actually a lot more common than we realize when you add all of this together, and so familial hypercholesterolemia goes undiagnosed so often because people may not realize they have high cholesterol and that’s about one in 200 to one and 250. So when you add up everything, that’s the number we tell people when they’re interested in learning.
about inherited heart diseases.

In terms of on my slide, isn’t there you go in terms of my role? I do a lot of the standard, no genetic counseling activities or like tasks in a session that most other clinical genetic cancer. Patient facing genetic counselors do. So I want to go over this and other speakers have covered this, but a few things I do in addition, which I hadn’t before, are specifically related to. Image Ng Records and blood tests. And so a lot of times we specifically require documentation from
family members or medical records. You know, if they’ve had a MRI or you know blood work for their cholesterol will ask to see that you know they’ll have to give us permission to either look in the chart or send it to us, because the symptoms and heart diseases are so generic, you could have palpitations for a non genetic visan. Or you could have it as part of a genetic condition, and so the symptoms are quite vague. Cardiac arrest means something
very different from heart attack,
but people use it intermittently quite often,
and so if you tell me somebody
had a heart attack,
it was a male that had a heart attack at 55.
That’s not necessarily as concerning to me
as a male that had a cardiac arrest at 55,
and so we will often ask to look
at family members, image Ng,
or Surgical Records.
Or even an autopsy report if that’s possible,
because arrhythmia is a process of exclusion,
and so the autopsy couldn’t find
anything in a deceased family member.
But the medical examiner might
say it was likely an arrhythmia.
We will often ask the patients to get certain screenings before we do genetic testing on them. We might look at their cholesterol panel, glucose and blood pressure. Blood pressure can have an impact on many different heart diseases, including genetics. So the cardiomyopathy, sometimes there is, sometimes blood pressure is a risk. And then the connective tissue diseases can also be impacted by blood. Pressure levels will often ask them to get an EKG or an MRI.

Or calcium score,
which is essentially a CT scan to look for calcium deposits to see if they have any signs of coronary disease. And then I also sometimes call out these results. My scope is very limited in this. I can only call out certain types of results and so for a subset of patients I called them out myself. But then for most other patients I review it with the physician before calling out these results. The case example I have is for arrhythmogenic right ventricular cardiomyopathy. It’s a really long name.
It’s actually short, and nowadays it’s called arrhythmogenic cardiomyopathy.

It’s one of the more rare conditions, and it’s inherited in a dominant manner, so one genetic mutation is theoretically enough for somebody to have this condition over their lifetime.

Essentially, what happens in this condition over their lifetime.

Essentially, what happens in this condition over their lifetime.

Essentially, what happens in this condition over their lifetime.

Essentially, what happens in this condition over their lifetime.
of the heart structure.

It’s not able to pump blood as efficiently, and so maybe it’s struggling to, you know, keep a certain rhythm.

You can have syncope or presyncope, which are essentially fainting and Lightheadedness, not the normal fainting that most children have.

This you know there are differences in cardiac fainting and vasovagal.

Painting you can have palpitations or sudden death and sudden. That doesn’t mean that somebody is deceased, but they could be revived or resuscitated, but this is typically what we
ask for in a family history.

There are medications for treatment.

There are lifestyle modifications.

This is 1 specific example where somebody is an athlete.

Bay may get a strong recommendation to either reduce the intensity or frequency of their sport because exercise and activity can be a trigger for a rhythmia and then you know shared decision making.

Such is such an important part of all our conversations.

Somebody may choose to keep playing that sport but with an ICD which is like a little.
Pacemaker that helps regulate heart rhythm.

And so this particular example, the mail with this arrow here, had come into our clinic.

Then 11 years ago I wasn’t part of the team. Then he came in because his son, who is down here, had a sudden cardiac arrest at 29 and did pass away from that. Genetic testing was done on the presenting person in the family. They looked at 10 different genes and it was completely negative.
They came back to us more recently last year because another son had a cardiac arrest at 42 and was in the hospital and eventually did possibly. We don’t know what the genetic causes, 'cause testing was negative and there are all these other family members that were not evaluated in the past. In the past it was just that one person because he had.The connecting relative his brother had a fib, which can sometimes be a symptom and
his son had the sudden cardiac death.

But now we don’t know.

And so one question on this,

and that’s I think the next poll is,

there are so many you know people involved from the next generation,

so between birth and five years 6 to 12.

A dollar since 13 to 18 adulthood.
Early adulthood 18 to 34 or 35 years and older. And will give five more seconds.

And will give five more seconds. The 18 to 34 years. That’s what I used to think do. And you know, a lot of times that is the experience. I guess in cancer genetics, you know it’s primarily adult onset and that was my background. It’s actually 6 to 12 years in cardiology we can initiate cardiac screening because we are seeing more and more that it goes undetected around age 8.
And our physicians even want to start earlier if they can. For example, for high cholesterol, you could theoretically start treatment between age 10 and 12. If they have really high cholesterol because the amount of time you’re exposed to high cholesterol is what determines how much risk you have for coronary disease and then for cardiomyopathies which we’re talking about screening the start around age 8 or so, and you know we plug them in earlier, and so in this particular family. Like there were many individuals that could benefit from screening even if...
there is no genetic cause identified,

you would want to screen in the close relatives with EKG’s or Mris in this case.

And so the things we talked about for all of them included the genetic test results from 10 years ago, which were negative know what is their value in repeating that testing now.

We found out that one of the children actually ended up having some genetic testing few years ago, and it was an uncertain result.

The VUS is a variant of uncertain significance where there is a variant,
but we just don’t have enough information on it to know whether it’s the cause of the condition or whether it’s completely benign. We may be having just seen it enough number of times before, and so we went over those results. Logistic issues.

The 42 year old who had the heart cardiac arrest recently was in a completely different hospital and so we had to figure out how to get a sample which physicians to coordinate with where to even send the testing. Would insurance cover it or not? Thankfully,
we have some free genetic testing

options in cardiology that we're able to access for a lot of situations,

That genetic testing from the 42 year old did identify two VUS is the one that had been identified before and another one.

So going over the fact that it’s still, you know, an uncertain result.

Is there any utility in testing other people?

We do something called segregation analysis which has a research component.
where we're trying to see is it tracking with symptoms in a family. And then you know,

we have to figure out who is the best person to. Best in this scenario, if we want to do segregation analysis and then psychosocial issues,

the mom of the two sons who passed away, you know she had not been evaluated in the past and so there was a lot of guilt and frustration over the fact that you know there was no follow up for her side of the family. Clinically, there had not been a
01:28:16.168 --> 01:28:17.952 reason previously, but you know,
01:28:17.952 --> 01:28:19.488 obviously we’re redoing everything
01:28:19.488 --> 01:28:21.749 at this point and so the focus
01:28:21.749 --> 01:28:23.925 on one side of the family I had
01:28:23.925 --> 01:28:25.295 to shift from looking at.
01:28:25.300 --> 01:28:27.682 All the relatives who are closely
01:28:27.682 --> 01:28:30.092 related to the individuals that had
01:28:32.330 --> 01:28:34.844 I don’t think we have too much
01:28:34.844 --> 01:28:36.634 time for the research example.
01:28:36.640 --> 01:28:39.136 I’m just going to say that you know
01:28:39.136 --> 01:28:42.019 my role really depends on the project,
01:28:42.020 --> 01:28:44.180 and these projects can take years.
01:28:44.180 --> 01:28:45.532 This was started in.
01:28:45.532 --> 01:28:47.560 This particular example was started in
2015 and we’re just about submitting revisions for a publication.

It started off with one symptom and now you can see from the different colors there are different symptoms in different people.

Two different genetic mutations that we’re tracking so it can take a lot of time. But it’s you know, a very enriching experience, and so that’s where I leave it.

If we have time for questions, I’m happy to take them. Or you can email me or I’ll be around at the end as well. Thank you.
Things are pretty great talk and there were a couple of questions for you. I think. Same with Julie if I could just direct you to the Q&A portion. And of course at the very end will have more time to talk about it, but I’ll let I think it’s Samantha. You’re up next.
You may have heard some folks say clinical genetics or clinical genetic counselor. That’s my department, so I’ll kind of go into what we do and how we differ maybe from other specialties? Just briefly on my background, I went to undergrad at UConn go Huskies. I then went to the University of Pittsburgh for Graduate School. Created in 2017, I took a job at Connecticut Children’s where I was a Jack of all trades. I was involved in pediatric genetics clinic. Take Children’s Hospital so our pediatric patients.
I also saw patients in the neurology clinic so I was doing a little bit of neurology as well. Also doing a utilization management type of role where there was essentially a consultation service. They would other providers in different specialty areas would contact me. Say hey, what’s the best genetic test for XY and Z symptom or for this patient and I would kind of help navigate that. Process. I also did a little bit of qualitative research there too,
and just last year I tried to simplify my role as being more of a general genetics genetic counselor. So here working at the School of Medicine. So briefly, General Genetics is kind of a catchall phrase. We really see individuals with genetic conditions really throughout the lifespan. Arbiter was talking about. She sees patients and they have Cardiology manifestations, Cancer genetic counselors have patients that they’ll see with a personal or family history of cancer.
We see pretty much everything else outside of that, so we don’t necessarily specialize in a disease area or a group of diseases. We see patients from birth until the oldest patient I’ve ever seen was 85 years old. So we see, you know, throughout the lifespan, for sure. General genetics can sometimes be broken up into pediatric and adult genetics, depending on the health care system and how it’s broken down. We here at Yale we just works called General Genetics.
One thing I really like about general clinical genetics is we were the folks that kind of manage the ultra rare diseases. So the cases where there are 15 reported cases in the literature or what have you. So we have the opportunity to serve those patients. And the goal for us is we’re really trying to answer this question. Is there an underlying or a unifying diagnosis for a person’s medical or family history? So I kind of have that emphasized down here in this little pedigree.
So this was a patient who had two, you know, seemingly unrelated medical issues, low calcium in her blood, and a congenital heart defect with a father that had a history of a cleft pallet so they don’t really seem related. From a medical standpoint, but there’s actually a pretty common genetic condition that you know that’s almost pathognomonic for that condition. So we see like I said, we see a lot of different things.
referrals will see are folks who aren’t little kiddos who aren’t meeting their developmental milestones. Folks that have a diagnosis of autism or intellectual disability. Children who have congenital anomalies or congenital structural differences. Folks that have inborn errors of metabolism are not really going to get into the meat and potatoes of today, but those folks have a hard time breaking down certain fats, proteins, or carbohydrates. And also many control disorders. Mitochondria, the powerhouse of the cell. As we all know.
There are specific management conditions and management options for patients that we follow, and then connective tissue disorders that were mentioned earlier. Just a minute ago, I was talking about the nuts and bolts of what we do on a daily basis. I have three half-day clinics where I see patients for a variety of indications, which I just talked about. Sometimes genetic counselors might briefly mention this, but genetic counselors are sometimes involved.
work with physician who has either specialized training in a special disease.

For her cardiology for us we work with geneticists.

We see probably an average of 20 patients a week, so it’s a pretty good volume.

We also have the opportunity to do inpatient consultations, so if there is a baby that’s born with congenital structural differences and the team in the inpatient unit wants to start working them up for a genetic cause, we’ll go and do a consultation for them for that.
And what’s really nice is that in general genetics we have a bunch of different types of healthcare professionals working with us, so not only genetic counselors and geneticists, but nurses dieticians like I sent for those metabolic conditions where there might be certain dietary management options. We also have social workers that work with us really closely and doctors in other specialties that we work with pretty closely as well. We also work with researchers.
genetics here at Yale we have. Researchers you know, kind of at our disposal, which is really nice too to get patients involved in research if they like. Some of the other admin stuff that we do when we’re not seeing patients like Julie said we do a lot of pre-charting in case prep. We work on genetic testing efforts so it’s a little bit harder to get genetic testing covered for some of the rare things that we see, I think insurance companies are slowly coming around. It’s not as clear cut sometimes as you
know how particular medical management would change for a particular patient. And so, like I said, insurance authorizations are a part of that as well, and because of our results, sometimes they’re little in depth, and because we see so many different types of things, it usually takes us some legwork to be informed and to be knowledgeable enough on a particular result or following up with a patient.
So we do a lot of digging medical research on our end. Before communicating with the patient. So I’m going to talk real quick about a patient that we saw with a Doctor Who is an OBGYN and a genetic test. Xi’an, I saw this patient. She is an 8 year old female. She had come to us because she wasn’t growing the right way. Upon taking some history we learn that she has some mild learning difficulties in school.
I didn’t throw in a pedigree here but there wasn’t any significant family history for us to be cognizant of.

And the two tests that we ordered are called chromosome analysis and a chromosomal microarray, both of which are really addressing the question of does a person have the correct amount of genetic material?

So I’m going to throw up our poll. So I’m wondering, and it’s OK if you guys don’t know this. No pressure, but does anybody know the most common genetic cause of short stature in females?
We’ll just let that go.

I keep feeling bad ’cause I know I’m cutting people off who might be seriously thinking about it, but I’ll stop in five seconds.

OK, I’m sorry.

OK, what do we have?

Turner syndrome is correct.

So I’m going to be talking a little bit about Turner syndrome.

Alright, yeah.

So I’m going to be talking a little bit about Turner syndrome.

Those other conditions do have short staffed shahraz.

A clinical features well,

but Turner syndrome is by far the more the most common and this
01:39:34.545 --> 01:39:37.868 is a picture of not our patients

01:39:37.868 --> 01:39:39.996 karyotype or chromosome analysis,

01:39:40.000 --> 01:39:43.136 but as an example of one for

01:39:43.136 --> 01:39:44.480 classical Turner syndrome,

01:39:44.480 --> 01:39:48.260 folks are supposed to have 46 chromosomes


01:39:51.420 --> 01:39:53.736 I only have One X chromosome.

01:39:56.360 --> 01:39:58.502 It occurs in approximately 1 in

01:39:58.502 --> 01:40:00.654 2000 live births, so with this

01:40:00.654 --> 01:40:03.160 test result we’re able to say yes.

01:40:03.160 --> 01:40:06.373 We answer the question of why this

01:40:06.373 --> 01:40:08.978 patient isn’t growing the right way.

01:40:08.980 --> 01:40:10.882 You know there are other features

01:40:10.882 --> 01:40:12.531 that are associated with Turner

01:40:12.531 --> 01:40:14.126 syndrome that I listed here.

NOTE Confidence: 0.880551
01:40:14.130 --> 01:40:15.740 Things like congenital heart defects,
NOTE Confidence: 0.880551
01:40:15.740 --> 01:40:17.084 congenital renal anomalies,
NOTE Confidence: 0.880551
01:40:17.084 --> 01:40:20.820 or how the heart and kidneys are shaped.
NOTE Confidence: 0.880551
01:40:20.820 --> 01:40:23.856 There are some increased risks of
NOTE Confidence: 0.880551
01:40:23.856 --> 01:40:25.880 particular conditions like diabetes,
NOTE Confidence: 0.880551
01:40:25.880 --> 01:40:26.836 thyroid problems,
NOTE Confidence: 0.880551
01:40:26.836 --> 01:40:29.226 the most striking thing that
NOTE Confidence: 0.880551
NOTE Confidence: 0.880551
01:40:31.950 --> 01:40:35.998 When we I diagnosis in a young girl
NOTE Confidence: 0.880551
01:40:35.998 --> 01:40:38.958 is typically they have streak ovaries
NOTE Confidence: 0.880551
01:40:38.958 --> 01:40:42.710 which is just a fancy way of saying
NOTE Confidence: 0.880551
01:40:42.807 --> 01:40:45.643 very underdeveloped ovaries and
NOTE Confidence: 0.880551
01:40:45.643 --> 01:40:49.188 they result in diminished fertility.
NOTE Confidence: 0.880551
01:40:49.190 --> 01:40:51.213 So you know we had the opportunity
NOTE Confidence: 0.880551
01:40:51.213 --> 01:40:53.387 to kind of disclose this result
NOTE Confidence: 0.880551
01:40:53.387 --> 01:40:55.859 and we see Turner syndrome pretty
01:40:55.859 --> 01:40:56.980 regularly in clinic,

01:40:56.980 --> 01:40:59.804 so we were able to kind of say, 

01:41:01.880 --> 01:41:03.688 OK, we have an understanding for

01:41:03.688 --> 01:41:05.468 why this patient isn’t growing 

01:41:05.470 --> 01:41:08.914 but we also now have these other 

01:41:08.914 --> 01:41:11.768 medical things to follow up on.

01:41:11.770 --> 01:41:14.045 And that’s kind of where you know

01:41:14.045 --> 01:41:15.428 genetic counseling and genetic 

01:41:15.428 --> 01:41:17.516 counselor in conjunction with a lot 

01:41:17.516 --> 01:41:19.798 of other medical providers is really 

01:41:19.798 --> 01:41:22.654 helpful so you know what I as a

01:41:22.654 --> 01:41:25.180 genetic counselor will do is when I 

01:41:25.180 --> 01:41:27.567 see the patient for a first time, 

01:41:27.570 --> 01:41:29.898 one of the first things I want to

NOTE Confidence: 0.880551
do is figure out you know what

their concerns are like.

Julie said, creating and establishing that report with them understanding of you know what?

Brings them to see us with their interests are collecting all of that important history.

Discussing the risks, benefits, and limitations of genetic testing. How we return these genetic results

is usually something that I will do usually independently.

And in that for Turner Syndrome in particular, there are really good medical management
guidelines that we can kind of defer to.

Discussing things like inheritance and recurrence risk for the family. And that's you know, a pretty challenging type of dynamic, especially in clinical genetics that might not be. There's a little bit of a nuance and how to do some counseling for adolescents and children who are of the age of being able to understand what we're talking about and how to manage those conversations. And for our for this particular case,
we have a great multi disciplinary clinic

that we were able to refer the patient to.

Where we would continue to manage them.

Times clinical genetics.

We kind of think of as a primary care

Center for folks with genetic conditions,

so we make sure that patients are following

up with the endocrine doctor or cardiologist,

or getting all of the image in that

gets to happen, or what have you

for a particular genetic condition.

And one thing that we really focus on

two is how to communicate that diagnosis

with all of the right people. How are we?

You know, for pediatric patients,

is there a necessity to disclose
these results to a school?

Because if it’s going to impact their learned patience,

learning or added justification to get extra services in the school setting,

that’s something that we regularly do then.

Also, communicating these results to other family members and other medical providers,

primary care,

and pediatricians I’ve found have.

I don’t have as much of a breadth of understanding of genetic conditions and how they can manifest in children an adult,

so that’s something that will, often, you know,
kind of explain to them through different types of documentation. So yeah, so that’s all I have.

I would be more than happy to. I don’t think I’m running overtime. My genetic counselor counterpart, Emily. She’s going to be answering some questions in the Q&A this afternoon on my behalf.

I have to go over to the clinic, but if anyone is interested in reaching out to me personally, my email is there and would be more than happy to answer any questions. Thank you thanks. One of
my supervisors at my genetic counseling program used to call clinical genetics, boss level genetics and inflation reminded me why.

Good, I'll hand it over to Anthony. Thanks again.

Alright, so my name is Anthony Porto.

I am aging that counselor here at the Yale DNA lab until giving you.

I'll be giving him more of a perspective on a non patient caring genetic counselor and what that role is kind of like.

So as a quick outline, I'll be giving
01:45:22.620 --> 01:45:23.970 a brief introduction to myself,
NOTE Confidence: 0.8340783
01:45:23.970 --> 01:45:26.140 going over kind of a day as a
NOTE Confidence: 0.8340783
01:45:26.140 --> 01:45:28.622 laboratory GC is like and then giving
NOTE Confidence: 0.8340783
01:45:28.622 --> 01:45:31.130 a quick case example for that.
NOTE Confidence: 0.8340783
01:45:31.130 --> 01:45:33.642 So I did my graduate studies in genetic
NOTE Confidence: 0.8340783
01:45:33.642 --> 01:45:35.759 counseling at Northwestern University.
NOTE Confidence: 0.8340783
01:45:35.760 --> 01:45:38.532 This position at Yale is my first
NOTE Confidence: 0.8340783
01:45:38.532 --> 01:45:40.521 into graduating as I graduated
NOTE Confidence: 0.8340783
01:45:40.521 --> 01:45:42.316 in the class of 2020.
NOTE Confidence: 0.8340783
01:45:42.320 --> 01:45:44.777 So my position here is primarily just
NOTE Confidence: 0.8340783
01:45:44.777 --> 01:45:47.771 to act as agent counselor for the lab
NOTE Confidence: 0.8340783
01:45:47.771 --> 01:45:50.552 and I'll get into more about what
NOTE Confidence: 0.8340783
01:45:50.552 --> 01:45:53.478 the specific details are that are as
NOTE Confidence: 0.8340783
01:45:53.478 --> 01:45:56.609 compared to a clinical GC as we go.
NOTE Confidence: 0.8340783
01:45:56.610 --> 01:45:59.458 And so my really main point on this
NOTE Confidence: 0.8340783
01:45:59.458 --> 01:46:02.472 that I wanna talk about is just.
What are the responsibilities as well as the utility of having a genetic counselor in the lab to coordinate with the clinical genetic counselors? Before we get started all about, I want to hear what you think are possible duties that a lab GC could have, so will give you a quick poll to see what you all think. Oh, and you can select multiple choices. You don’t just have to pick one for the best question. This one involves a little more reading, so maybe I’ll go.
Sorry, I made a long question.

We can say.

Five more seconds.

OK.

So. Lot of answers for a lot of them,

The short answer is that all

of these potentially can be a

role of a lab genetic counselor.

When I will call out is calling

out patients isn’t very common

out patients isn’t very common

of labs that counselors.

That’s mostly left to the clinical team.

However, there are some labs that are

starting to expand into that role,

so want to point out that that
01:47:44.980 --> 01:47:47.026 was a possibility for people that
01:47:47.026 --> 01:47:49.252 you could all be aware of it.
01:47:53.770 --> 01:47:56.605 So as a day in my position,
01:47:56.610 --> 01:47:58.150 specifically here at Yale,
01:47:58.150 --> 01:48:01.060 I don’t have any direct patient contact.
01:48:01.060 --> 01:48:03.514 My role is specifically to facilitate
01:48:03.514 --> 01:48:05.889 with the clinical GCS what the
01:48:05.889 --> 01:48:08.553 laboratory can do and help them in that
01:48:08.623 --> 01:48:11.188 which involves helping with ordering,
01:48:11.190 --> 01:48:13.315 testing, helping with getting insurance
01:48:13.315 --> 01:48:15.859 coverage and just making sure that
01:48:15.859 --> 01:48:17.644 the overall process of getting
01:48:19.690 --> 01:48:22.180 So I would say I have.
NOTE Confidence: 0.86107075
01:48:25.670 --> 01:48:27.620 The first is helping the insurance
NOTE Confidence: 0.86107075
01:48:27.620 --> 01:48:29.360 team and working with the
NOTE Confidence: 0.86107075
01:48:29.360 --> 01:48:31.245 providers to get testing authorize.
NOTE Confidence: 0.86107075
01:48:31.250 --> 01:48:33.060 The second is coordinating with
NOTE Confidence: 0.86107075
01:48:33.060 --> 01:48:34.870 providers more generally UN testing
NOTE Confidence: 0.86107075
01:48:34.928 --> 01:48:37.436 and that can be on the type of
NOTE Confidence: 0.86107075
01:48:37.436 --> 01:48:40.330 testing or how to order it or however,
NOTE Confidence: 0.86107075
01:48:40.330 --> 01:48:42.458 and then the last thing is really
NOTE Confidence: 0.86107075
01:48:42.458 --> 01:48:44.286 working with the laboratory staff
NOTE Confidence: 0.86107075
01:48:44.286 --> 01:48:46.416 and sort of quality control
NOTE Confidence: 0.86107075
01:48:46.416 --> 01:48:48.364 continuing improvement of the lab
NOTE Confidence: 0.86107075
01:48:48.364 --> 01:48:50.492 and just making sure that the lab
NOTE Confidence: 0.86107075
01:48:50.492 --> 01:48:52.840 policies and procedures are moving
NOTE Confidence: 0.86107075
01:48:52.840 --> 01:48:54.880 as smoothly as possible.
NOTE Confidence: 0.86107075
01:48:54.880 --> 01:48:55.960 So not surprisingly,
I don’t work very independently. I’m a part of the team here at the DNA lab, so I work with a lot of people constantly, including the technicians who run the actual testing. The analysts who look over and then report out the genetic data. The director is here at the lab as well as the team who gets the insurance off and tries to get that testing approved. So we’ll start with going over my first main thing, which is getting testing authorized. I think it’s pretty safe for us all to agree that insurance can...
be difficult sometimes they they
NOTE Confidence: 0.86107075
don’t always want to pay for things,
NOTE Confidence: 0.86107075
even if it’s something that we
NOTE Confidence: 0.86107075
feel like they should be paying.
NOTE Confidence: 0.86107075
So as a response to that,
NOTE Confidence: 0.86107075
my one of my main duties is to help
NOTE Confidence: 0.86107075
in order to make sure that we can
NOTE Confidence: 0.86107075
der that covered and the way that
NOTE Confidence: 0.86107075
that works is that insurance covers
NOTE Confidence: 0.86107075
things based on what are called.
NOTE Confidence: 0.86107075
CPT code or current procedural
NOTE Confidence: 0.86107075
terminology codes,
NOTE Confidence: 0.86107075
and So what we do is we tailor our
NOTE Confidence: 0.86107075
testing to use specific CPT codes
NOTE Confidence: 0.86107075
that match both the insurances
NOTE Confidence: 0.86107075
guidelines as well as what the
provider is talking about in their notes in any documentation that we have as to why they think the testing is important and the reason we do this is that when we work in tandem like that with the clinical team, we found that we have. Better success at getting insurance to actually cover the testing. Sometimes it’s not that straightforward though, and I’ll still need to go out. Call the insurance. Say hey you guys are giving us a difficult time getting discovered what’s going on?
What can we do to work this out?

And so that’s another big part of what I do here.

Lab and I also like.

I mentioned earlier, I talk with the providers about you know how to go about that CPT coding.

What sort of genes were thinking of? Based on what their indication is and what they’ve said in the note.

So specifically working with providers, one of my main functions is really just acting as a liaison between them in the lab in general.

So a lot of what I do is just sort
01:51:08.048 --> 01:51:09.943 of communicating with them through
any way that they need help in any
questions that they can have answered.
So a good example of this is that
I get a lot of emails from you all
as GCS as well as other providers.
Just asking you know, hey,
I work at this testing.
2 weeks ago, month ago, whenever it was.
Can I get an update on what the product,
the processes and still look into?
OK, we got the sample.
OK, we got the sample.
Have we gotten insurance coverage yet?
If we’ve gotten insurance how we started
the actual sequencing process yet,
01:51:41.020 -- 01:51:41.872 and if so,
NOTE Confidence: 0.87586427
01:51:41.872 -- 01:51:44.579 how long do I expect for that to be
NOTE Confidence: 0.87586427
01:51:44.579 -- 01:51:46.819 turned around and I’ll try to give
NOTE Confidence: 0.87586427
01:51:46.819 -- 01:51:49.418 them an update on where that all is,
NOTE Confidence: 0.87586427
01:51:49.420 -- 01:51:52.606 as well as give them a timeline and when
NOTE Confidence: 0.87586427
01:51:52.606 -- 01:51:55.866 they can expect that result to come back.
NOTE Confidence: 0.87586427
01:51:55.870 -- 01:51:56.524 In addition,
NOTE Confidence: 0.87586427
01:51:56.524 -- 01:51:58.482 it’s giving in addition to that,
NOTE Confidence: 0.87586427
01:51:58.490 -- 01:52:00.982 I go to the clinical case conference
NOTE Confidence: 0.87586427
01:52:00.982 -- 01:52:02.706 that the Department of Genetics
NOTE Confidence: 0.87586427
01:52:02.706 -- 01:52:05.050 has that Sam and Emily also go to,
NOTE Confidence: 0.87586427
01:52:05.050 -- 01:52:07.453 and that I’m sort of able to give the
NOTE Confidence: 0.87586427
01:52:07.453 -- 01:52:09.714 lab’s perspective on any patients that
NOTE Confidence: 0.87586427
01:52:09.714 -- 01:52:12.270 they’re talking about in that you know,
NOTE Confidence: 0.87586427
01:52:12.270 -- 01:52:14.442 what would we recommend is the
NOTE Confidence: 0.87586427
01:52:14.442 -- 01:52:16.869 procedure may be what we think would
be the ideal way to go about that testing and just sort of give more of a comprehensive view and help them in deciding how to manage that placement. And again, like I mentioned earlier, a big part of this is trying to work with insurance. So there are times when I’ll reach out before we do any sort of coding or testing to try and determine what the provider is looking for so we can make that all line up, but also do so afterwards. Sort of two work with them again,
just to make sure that that insurance piece is covered as best as we can.

And then the last thing that I want to touch on is more of my work internally in the lab, so this is really where there’s a lot of different opportunities for lab GC that come from that list that I had in the poll. So one of the main things that I do is quality control, and there’s a lot of different ways in which that I support that, but one of the ones that I think is best and sort of shows the utilization of a genetic counselor specifically.
NOTE Confidence: 0.86085314
NOTE Confidence: 0.86085314
01:53:24.450 --> 01:53:26.520 For specific conditions that we see
NOTE Confidence: 0.86085314
01:53:26.520 --> 01:53:29.061 often come through the lab so you can
NOTE Confidence: 0.86085314
01:53:29.061 --> 01:53:31.360 see below my quality control on the slide.
NOTE Confidence: 0.86085314
01:53:31.360 --> 01:53:33.712 I have a little blurb talking about
NOTE Confidence: 0.86085314
01:53:33.712 --> 01:53:35.732 sickle cell disease and that was
NOTE Confidence: 0.86085314
01:53:35.732 --> 01:53:37.634 developed based on both my knowledge
NOTE Confidence: 0.86085314
01:53:37.634 --> 01:53:39.758 of sickle cell disease from my
NOTE Confidence: 0.86085314
01:53:39.758 --> 01:53:41.498 training as well as research.
NOTE Confidence: 0.86085314
01:53:41.500 --> 01:53:44.286 And this has helped the lab to
NOTE Confidence: 0.86085314
01:53:44.286 --> 01:53:46.206 standardize our reporting because a
NOTE Confidence: 0.86085314
01:53:46.206 --> 01:53:49.319 lot of the reporting the way that we do it.
NOTE Confidence: 0.86085314
01:53:49.320 --> 01:53:51.560 Is that we do the sequencing and then
NOTE Confidence: 0.86085314
01:53:51.560 --> 01:53:53.748 one of several analysts on our team
NOTE Confidence: 0.86085314
01:53:53.748 --> 01:53:56.112 will look at that to determine if
NOTE Confidence: 0.86085314

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there's any genetic changes and if there are, what is the cause of that? And so a lot of this writing can be different from analyst to analyst because we all think differently, so while it’s similar, it’s a little bit different from person to person, so our goal was to make it all standardized about our reports, come out saying the same thing every time. Another really cool aspect that I get to do here in the lab is what’s called gene curation. So for those who don’t know,
Gene creation is the process of determining whether a gene causes a disease or not. An I have a little table here sort of demonstrating what part of that process is. So basically what you do is we want to develop a list of genes for each, either symptom or disease, so that when we get that from a provider, we know all the list of genes that we need to look at. In order to make sure that we’re not missing any potential genetic cause. So what we do is we look through the literature.
websites and we tried to determine. What those genes for that condition would be? And this really helps us build that list so that every time that we get one of those orders, we make sure we’re covering all the genes that could be causing it. And this sort of curation is really important, because as all of you know, genetics is rapidly evolving and changing. So it’s very important to constantly be updating these lists constantly, be checking for new jeans and making sure that we have a comprehensive
01:55:36.598 --> 01:55:38.418 list and we're not missing.
01:55:38.734 --> 01:55:41.560 And the last thing that I really do today is I support the very interpretation and the actual writing of these reports that we send out to the clinical staff.
01:55:44.423 --> 01:55:47.033 similar to gene creation is sort of determining whether that change that we're seeing in a gene actually causes the disease, or if we don't think it causes the disease.
01:55:51.420 --> 01:55:54.115 so on the right bottom corner you can see sort of the table that a CMG the American College of Medical Genetics has created.
01:55:56.374 --> 01:55:59.380 If it's what we call benign, so the right bottom corner you can see sort of the table that a CMG the American College of Medical Genetics has created.
in order for you to determine whether or not a change in one of those jeans. Will cause disease and so we go through this and look at the criteria of the change and trying to decide whether or not that is causing the disease. And then we can write up a report based on what we find to say hey, this is what we found. We either think this particular change causes a disease. Here’s the disease. Here’s some information about it, or we can say, hey, we weren’t able to find anything for this patient.
01:56:48.800 --> 01:56:51.068 Maybe in the future we can.

01:56:51.070 --> 01:56:54.550 But as of right now, we unfortunately don’t have a genetic cause.

01:56:56.730 --> 01:56:59.722 The last thing I want it really quickly is just go over a case example.

01:57:02.390 --> 01:57:04.812 This is very insurance pacing and the reason I chose this specifically is I think it shows how important it is to have someone with clinical understanding involved in the insurance process because it can be very difficult sometimes,

01:57:07.352 --> 01:57:10.399 so the patient SF was seen for cardiac surgery for an ascending aortic aneurysm, and they ordered genetic testing, so her testing was initially decided.
Denied by the insurance and the ordering provider called them and asked them, you know, what can we do about this? How can we get this approved and they recommended using different codes than what the labs originally coded for. So OK, that’s straightforward and easy enough. We resubmit it for insurance. All we use the codes that they request and they come back saying that it needs additional information. So we’re all sitting around like, OK. We did exactly what you asked. What’s going on. So I hop in. I called the insurance company themselves.
I discussed with them and they basically say, "Yeah, well, we actually told the provider is that we would maybe approve these codes, but what you originally submitted wasn’t actually sufficient. So I go back to the order divider and I tell them OK. It sounds like they will approve these codes, we just need to give them more information proving why this is so important. And so I hope the provider write up a letter of medical necessity. To address all of their additional questions and we send that to the insurance company."

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which finally results in it getting approved.

So without all of that communication and sort of understanding of both the processes and the clinical importance, I think getting that testing approved may have never happened.

I know that was kind of fast. I know we’re also kind of behind on time, but I will be around to answer any questions as well, so please let me know if you have anything.

Thanks Anthony, that was good.

I think there was one question in the chat section about insurance and our various interactions with insurance companies. I’m not sure if that participant who
01:59:15.770 --> 01:59:18.465 asked was directly thinking about cancer
01:59:18.465 --> 01:59:20.710 or reproductive for laboratory GCS,
01:59:20.710 --> 01:59:24.046 but we’re butting up right into our break
01:59:24.046 --> 01:59:27.890 time and there’s a lot of information today,
01:59:27.890 --> 01:59:30.592 so I do want to give people
01:59:30.592 --> 01:59:32.920 some time to decompress.
01:59:32.920 --> 01:59:35.272 I think I’ll make an executive
01:59:35.272 --> 01:59:37.288 decision to shorten the break
01:59:37.288 --> 01:59:39.526 from 15 minutes to 10 minutes,
01:59:39.530 --> 01:59:43.022 but feel free to grab a cup of coffee.
01:59:43.030 --> 01:59:44.980 Everyone. I’ll start the timer.
01:59:44.980 --> 01:59:46.920 Let me share my screen.
01:59:53.260 --> 01:59:55.888 And we can. Return.
01:59:59.630 --> 02:00:02.770 You guys can see that right? Perfect.
02:09:56.200 --> 02:09:56.930 My gosh.
01:59:24.046 --> 01:59:27.890 time and there’s a lot of information today,
And realize there would be noise coming from OK. Alright, and we're ready for Part 2.

Maria you first and then.

Let me go ahead and. Share my screen. Perfect everybody see. OK so hi everyone, my name is Maria Geyer. I am a genetic counselor. I work at the University of Connecticut. I AM what you call someone with a mixed position where I am mostly focused on academia and education, but I do have some clinical duties over on the medical campus.
So because of my role in education and my involvement in helping, you can’t start their own genetic counseling program. I’m going to talk to you a little bit today about applying to graduate programs for genetic counseling in general some. Some tips and tricks, some do’s and don’ts, maybe in order to maybe Taylor this a little bit better to who’s in the audience today? I have a couple of questions from polls that I wanted to throw up here just so I can get a sense of.
NOTE Confidence: 0.8376721
02:11:21.232 --> 02:11:21.734 So Alex,
NOTE Confidence: 0.8376721
02:11:21.734 --> 02:11:23.746 we want to throw that first one up.
NOTE Confidence: 0.8722717
02:11:26.740 --> 02:11:29.012 I want to know how many of you
NOTE Confidence: 0.8722717
02:11:29.012 --> 02:11:30.428 will be applying to genetic
NOTE Confidence: 0.8722717
02:11:30.430 --> 02:11:31.482 counseling programs this fall,
NOTE Confidence: 0.8722717
02:11:31.482 --> 02:11:33.060 or if this is something that
NOTE Confidence: 0.8722717
02:11:33.113 --> 02:11:34.643 you’re considering doing for this
NOTE Confidence: 0.8722717
02:11:34.643 --> 02:11:35.978 upcoming year, not attending,
NOTE Confidence: 0.8722717
02:11:35.978 --> 02:11:38.491 but applying because we all know that
NOTE Confidence: 0.8722717
02:11:38.491 --> 02:11:41.155 the process for this can be quite long.
NOTE Confidence: 0.8722717
02:11:41.160 --> 02:11:43.057 So if you are let us know,
NOTE Confidence: 0.8722717
02:11:43.060 --> 02:11:45.229 or even if you’re unsure, maybe a maybe.
NOTE Confidence: 0.905396
02:11:55.490 --> 02:11:57.930 Alright, and a few more seconds.
NOTE Confidence: 0.8822768
02:12:04.460 --> 02:12:06.050 Great, so more than half of
NOTE Confidence: 0.8822768
02:12:06.050 --> 02:12:07.370 you are planning on attempting
to apply this coming fall, so that’s great.

So you’re in the right spot in terms of listening and for those who aren’t planning on it might just be that you’re planning on it for you know a couple of years down the line, or you’re just really trying to see if genetic counseling today’s is kind of a good fit for where you want to go career wise.

I think you’re also in a good spot and I think there’s one more poll that I wanted to to throw up here, just that I could get some more information.

I was interested to know how many of
02:12:38.378 --> 02:12:40.184 you had applied to a genetic counseling
NOTE Confidence: 0.8822768
02:12:40.184 --> 02:12:41.923 program previously and maybe not been
NOTE Confidence: 0.8822768
02:12:41.923 --> 02:12:43.631 successful in matching with the program,
NOTE Confidence: 0.8822768
02:12:43.631 --> 02:12:45.799 because sometimes I mean more often than not.
NOTE Confidence: 0.8822768
02:12:45.800 --> 02:12:47.312 That is what happens that people
NOTE Confidence: 0.8822768
02:12:47.312 --> 02:12:49.319 don’t get in on their first round,
NOTE Confidence: 0.8822768
02:12:49.320 --> 02:12:51.232 so it can be helpful to me to
NOTE Confidence: 0.8822768
02:12:51.232 --> 02:12:53.469 know if if that really applies to.
NOTE Confidence: 0.8822768
02:12:53.470 --> 02:12:54.886 Most of you, or maybe not,
NOTE Confidence: 0.8822768
02:12:54.890 --> 02:12:56.690 many of you and I can maybe give
NOTE Confidence: 0.8822768
02:12:56.690 --> 02:12:58.188 you some more info on that.
NOTE Confidence: 0.8583451
02:13:05.530 --> 02:13:07.112 OK, alright so for a lot
NOTE Confidence: 0.8583451
02:13:07.112 --> 02:13:10.244 of you this is new turf,
NOTE Confidence: 0.8583451
02:13:08.690 --> 02:13:10.244 so that’s cool and that that again
NOTE Confidence: 0.8583451
02:13:10.244 --> 02:13:12.186 helps me to kind of tailor things
NOTE Confidence: 0.8583451
So alright, so we're going to talk about the process of grad school. We have about 1/2 an hour between Colleen and myself. Will try to take the 1st 15 minutes and there's a lot to say, so I'm going to go pretty fast, but hopefully if you do that survey at the end, you're going to get a recording and you can go back and listen. If you have some holes in what you've heard, so a few steps to talk about, you know. In terms of applying to program step one is know yourself right?
So you kind of have to know that this is going to be a career that’s right for you and there are different ways we’re going to talk about in terms of how to figure that out. But you being here today is obviously a great first step. Let’s learn about what life is like in different areas of genetic counseling. It’s not all just direct patient care anymore. You can. You can have a vast array of different experiences as a genetic counselor so you know there are different ways to do this. You can reflect on your needs and your goals like where you want to be in life.
Talk to people.
Listen to folks like us.
Seek out some other people who who might have some expertise in this area.
So really, you know the first step is to kind of sit with yourself.
In the second step,
you want to know the programs right? You want to know the programs right?
I really want to do.
You want to know the programs right?
So who’s out there?
How are they different?
How are they similar?
So although many of them are similar, you know each program is going to have kind of its unique spin or niche. There are some programs that focus much more heavily on psychosocial skills and that whole counseling aspect of it. There are some that focus much more on research, so maybe you have a desire to do research, but you really like genetic counseling like there are ways to intermingle those of you. As you’ve heard from Arcata. Technology, so maybe you want to learn more about next Gen sequencing. Maybe you know industry type
career with genetic counseling is your thing and there are programs that are just a little bit more in tune to things like that. You know, programs can different types of the in terms of the type and amount of clinical exposure you have. When you start your clinical rotations, how long you’re there and patient populations based on location. So there you know depending on where your program is geographically located, they might serve different populations and some might interest you more.
Or you may have a passion for a particular population.

So I encourage you to do your homework about programs right? So no other programs.

When you’re trying to select a program so you know the programs that are out there now and I gotta make your small list about, you know which ones interest you, there’s a lot of different factors. And aside from what I just said, where they can have kind of their own niche and specialty areas, they’re going to differ in some other ways too. So educational delivery.
So how are you going to learn that these programs? Most programs are face to face? You gotta be on campus and beyond sight, but some are online, some are hybrid and you'll hear from some students who attend programs like those. How big is a class size? Is that important to you? Do you want to have 20 classmates or do you want to have three? Can be a very different experience depending on what you're comfortable with. Cost is obviously something that can be prohibitive to a lot of people that...
02:16:17.362 --> 02:16:19.150 has to be considered into the equation,
NOTE Confidence: 0.8618158
02:16:19.150 --> 02:16:21.418 so you’re going to want to know tuition fees.
NOTE Confidence: 0.8618158
02:16:21.420 --> 02:16:22.926 You’re going to want to know,
NOTE Confidence: 0.8618158
02:16:22.930 --> 02:16:24.190 do they have scholarships available?
NOTE Confidence: 0.8618158
02:16:24.190 --> 02:16:26.206 What type of financial aid can they offer?
NOTE Confidence: 0.8618158
02:16:26.210 --> 02:16:27.470 What’s the cost of living?
NOTE Confidence: 0.8618158
02:16:27.470 --> 02:16:29.136 You know you may have always pictured
NOTE Confidence: 0.8618158
02:16:29.136 --> 02:16:30.739 yourself in a program in Boston,
NOTE Confidence: 0.8618158
02:16:30.740 --> 02:16:32.672 but can you afford to live in
NOTE Confidence: 0.8618158
02:16:32.672 --> 02:16:34.850 Boston but go to school full time?
NOTE Confidence: 0.8618158
02:16:34.850 --> 02:16:36.684 Is your program a program that allows
NOTE Confidence: 0.8618158
02:16:36.684 --> 02:16:38.538 you to work while you’re there?
NOTE Confidence: 0.8618158
02:16:38.540 --> 02:16:40.245 So all these things have to
NOTE Confidence: 0.8618158
02:16:40.245 --> 02:16:41.100 be considered location?
NOTE Confidence: 0.8618158
02:16:41.100 --> 02:16:42.520 We kind of touched on.
NOTE Confidence: 0.8618158
02:16:42.520 --> 02:16:42.803 Yes,
some can be in cities, some can be in rural areas, is a program close to where your family is, and maybe that’s going to be your housing while you’re there. Do they have public transportation or are you going to have to go to school with the car? Do you not have a car? So there’s a lot that can go into this. We talk about faculty, the faculty experience. How many faculty member to student ratio? What what? That looks like,
you know,
do you prefer a smaller learning environment or a larger one?
What affiliations do they have?
So are they connected with a university based hospital or do they have their own?
Are there other international partnerships that are important to you that they may have and what kind of training opportunities do they provide so you know what will your clinical rotation look like?
you know to get the standard like pediatric, prenatal and cancer?
Do you get a wider variety?
You know, do you get to pick a rotation?
That’s a specialty?
You know where you’re going to have as much lab experience.
Working with lab GC’s that you want.
So these are going to be always that that programs differ and these are obviously important questions for you to ask yourself when considering a program.
And I am going to just move this.
OK, OK? So when you’re exploring programs like, how do you start ready start?
I say go to this one particular website and as I listed here GC education.org and they’re going to list all of the currently
accredited programs in the US and Canada.
That’s going to be where you get your pool from and then you know,
just like we said, you make your smaller list and then you start asking questions.
So visit the campus. Now. I know in terms of COVID that’s been kind of difficult,
beeen kind of difficult, or that can be difficult. So zoom calls are appropriate phone calls to program directors or appropriate.
Asking questions, I’m just maybe a drive by see if the town is like something like that.
Try to get ahold of some students or alumni. And this is going to
02:18:37.450 --> 02:18:39.258 be very valuable to you as a prospective student, because it’s going to allow you to ask questions of things like you know what did you wish you knew before you came here, or if you could change something, what would you change?

02:18:42.887 --> 02:18:44.938 And you’ll start to get an overall feel of the student experience, and that, I think, is important in making your decision.

02:18:44.940 --> 02:18:46.302 or what was your favorite part of attending this program?

02:18:46.302 --> 02:18:47.210 And you’ll start to get an overall feel of the student experience, and that, I think, is important in making your decision.

02:18:48.566 Or if you could change something, what would you change?

02:18:49.366 --> 02:18:50.874 And you’ll start to get an overall feel of the student experience, and that, I think, is important in making your decision.

02:18:50.874 --> 02:18:52.199 feel of the student experience, and that, I think, is important in making your decision.

02:18:52.200 --> 02:18:53.500 and that, I think, is important in making your decision.

02:18:53.500 --> 02:18:55.450 is important in making your decision.

02:18:55.450 --> 02:18:57.026 We want you to ask lots of questions to the program Director’s.

02:18:58.340 --> 02:19:00.509 The ones I’ve listed kind of at the bottom.
Here are things that are good interview questions, so take a peek at those.

Step three, you want to know the process. OK, So what is applying to grad school is a process you have to know the timing for applications.

Most of them are going to be in late fall, early winter. You know.

How soon do you have to take your GR ES before that? Or do you have all the prereqs done before that?

Many of the programs had very similar requirements, but they are different. So once you make your small list you have to go according to what each program requires.
You know some required two semesters of organic chemistry and some don’t. So it’s very important to know those nuances. Well before you apply so that you have time to take them if you need them. Applying to more than one program. So data showed that if you apply to four or more programs, you have a much higher chance of getting into a program that if you apply to one or two. So that kind of makes sense. But you have to consider the cost of applying each program may have an application fee.
onsite interviews and you get

02:20:01.893 --> 02:20:03.507 interviews at four or five schools,

NOTE Confidence: 0.89031756

02:20:03.510 --> 02:20:04.790 you’re going to have to.

NOTE Confidence: 0.89031756

02:20:04.790 --> 02:20:05.510 I don’t know.

NOTE Confidence: 0.89031756

02:20:05.510 --> 02:20:06.470 Potentially fly there yourself

NOTE Confidence: 0.89031756

02:20:06.470 --> 02:20:07.600 or drive there yourself.

NOTE Confidence: 0.89031756

02:20:07.600 --> 02:20:09.385 You’re going to stay in a hotel,

NOTE Confidence: 0.89031756

02:20:09.390 --> 02:20:11.266 you know there can be waivers.

NOTE Confidence: 0.89031756

02:20:11.270 --> 02:20:12.650 For things like application fees,

NOTE Confidence: 0.89031756

02:20:12.650 --> 02:20:14.746 but there’s generally not a whole lot of

NOTE Confidence: 0.89031756

02:20:14.746 --> 02:20:16.498 support sometimes for the interview process,

NOTE Confidence: 0.89031756

02:20:16.500 --> 02:20:19.720 so so be sure to factor that in when you’re

NOTE Confidence: 0.89031756

02:20:19.800 --> 02:20:23.096 thinking about how many schools to apply to.

NOTE Confidence: 0.89031756

02:20:23.100 --> 02:20:24.755 So what are the requirements

NOTE Confidence: 0.89031756

02:20:24.755 --> 02:20:25.417 for applications?

NOTE Confidence: 0.89031756

02:20:25.420 --> 02:20:26.416 Like I said,
they're going to be very similar, but you know slightly different between programs. You're generally going to have to have some coursework in biology, chemistry, genetics, statistics, psych, something. I generally tell potential applicants is at AP courses will typically not fulfill these credits, so if you took like AP, Psych in college, I mean in high school and you got to get out of basic sight classes in college,
and you have not taken an upper level site class in college beyond that.

Then you might not meet the requirement for a graduate program that requires college level psychology.

So just a word wise, you know, courses you may have taken. That or AP, and have you taken any additional courses within that topic while in college. The Jerry’s or something that is starting to become less of a requirement for many programs, but some still do, so I put it on here because you know, if you’re going
02:21:20.703 --> 02:21:22.569 to be applying to 678 programs,
02:21:22.570 --> 02:21:24.761 you were likely going to encounter a
02:21:24.761 --> 02:21:26.920 program that’s going to require the Jerry.
02:21:26.920 --> 02:21:28.475 So to start thinking about
02:21:28.475 --> 02:21:29.408 that language requirements.
02:21:29.410 --> 02:21:31.276 This could vary widely between universities,
02:21:31.280 --> 02:21:33.464 but generally you’re going to have to have
02:21:33.464 --> 02:21:35.806 some type of evidence of proficiency in
02:21:35.806 --> 02:21:37.810 the English language transcripts and GPA,
02:21:37.810 --> 02:21:40.600 so a lot of people tend to ask me
02:21:40.600 --> 02:21:43.230 about GPA and how important it is.
02:21:43.230 --> 02:21:44.530 There are some programs that
02:21:44.530 --> 02:21:46.212 have GPA minimums or ranges that
02:21:46.212 --> 02:21:47.548 they typically accept students,
02:21:47.550 --> 02:21:49.926 and you know a lot can happen in college
02:21:49.926 --> 02:21:51.392
and a lot of people are usually kind of finding their own legs in college, and so sometimes their GPA is not always reflective of their motivation for Graduate School. Or maybe you’ve taken a lot of classes and things that really didn’t interest you as much so you didn’t do as well. There are ways to help realign your GPA. There are ways to kind of spend this a little bit I put in here. This is my shameless plug of the clinical genetics on line grad certificate that you come. So I started grad certificate. Kind of for folks that
fit into this category.

Maybe they have a decent GPA, but it’s nothing spectacular.

You know? I offer a four course. It’s done in two semesters.

It’s all online, asynchronous in clinical genetics and genomics.

So what better way to show a potential graduate?

Program and genetic counseling that you could handle graduate level coursework and clinical genetics and genomics.

Then taking some classes in same here. I did really well in these or this.

222
02:22:45.570 --> 02:22:47.209 is when this is in my wheelhouse.
NOTE Confidence: 0.8445341
02:22:47.210 --> 02:22:48.906 This is how I do this is a
NOTE Confidence: 0.8445341
NOTE Confidence: 0.8445341
02:22:50.020 --> 02:22:51.833 So you go to the website if
NOTE Confidence: 0.8445341
NOTE Confidence: 0.8445341
02:22:53.480 --> 02:22:55.508 You’re gonna need letters of recommendation,
NOTE Confidence: 0.8445341
NOTE Confidence: 0.8445341
02:22:58.770 --> 02:23:00.600 They should be pretty well rounded.
NOTE Confidence: 0.8445341
02:23:00.600 --> 02:23:02.434 They should be from people who can
NOTE Confidence: 0.8445341
02:23:02.434 --> 02:23:04.259 speak to your academic problems.
NOTE Confidence: 0.8445341
02:23:04.260 --> 02:23:06.102 They can speak to your ability
NOTE Confidence: 0.8445341
02:23:06.102 --> 02:23:07.620 to wear your counseling hat.
NOTE Confidence: 0.8445341
02:23:07.620 --> 02:23:09.450 They should speak to your character.
NOTE Confidence: 0.8445341
02:23:09.450 --> 02:23:10.970 Try to refrain from you.
NOTE Confidence: 0.8445341
02:23:10.970 --> 02:23:12.800 Know family, friends, things like that.
NOTE Confidence: 0.8445341
02:23:12.800 --> 02:23:14.630 It should be much more professional,
but it’s better to have more than less.

So personal statement is something that usually is something I get a lot of questions about.

And I will say that it’s not always the funnest part of the application. This is the time to tell them how you are unique and how amazing you are.

Is writing a personal statement like why I want to be a genetic counselor but it is critical this is your time to be different from other applicants.

This is the time to tell them how you are unique and how amazing you are.

I personally have never been very good at writing essays like that,
so I enlisted the help of some editors you know. So I wrote my Nan. I sent it off to have someone edit it and look at it and be like, oh I don’t understand what you’re talking about here. And then they gave me feedback. Most of you probably belong to universities or institutions or organizations that have some type of writing center or writing lab. So I encourage you to get this looked at by someone other than family members and friends. This should be someone who writing
NOTE Confidence: 0.8646686
02:24:09.791 --> 02:24:11.447 is what they do and they can read
NOTE Confidence: 0.8646686
02:24:11.447 --> 02:24:13.227 it for clarity and ensure that
NOTE Confidence: 0.8646686
02:24:13.227 --> 02:24:14.862 you’re getting the right message
NOTE Confidence: 0.8646686
NOTE Confidence: 0.8646686
02:24:17.140 --> 02:24:18.145 Application requirements also
NOTE Confidence: 0.8646686
02:24:18.145 --> 02:24:19.150 include volunteer experience,
NOTE Confidence: 0.8646686
02:24:19.150 --> 02:24:20.493 so it’s genetic counseling.
NOTE Confidence: 0.8646686
02:24:20.493 --> 02:24:22.775 So what type of organization or group
NOTE Confidence: 0.8646686
02:24:22.775 --> 02:24:25.143 have you been part of where you
NOTE Confidence: 0.8646686
02:24:25.143 --> 02:24:27.189 could put that counseling hat on?
NOTE Confidence: 0.8646686
02:24:27.190 --> 02:24:29.535 We talk a lot about crisis counseling,
NOTE Confidence: 0.8646686
02:24:29.540 --> 02:24:30.542 there’s bereavement counseling,
NOTE Confidence: 0.8646686
02:24:30.542 --> 02:24:31.210 support groups,
NOTE Confidence: 0.8646686
02:24:31.210 --> 02:24:32.890 working with the disability community.
NOTE Confidence: 0.8646686
02:24:32.890 --> 02:24:34.226 There’s lots of different
NOTE Confidence: 0.8646686
opportunities to volunteer,

even in times of coping,

so I’m always available to help

people brainstorm about what would

opportunities are out there.

And then showing that you’ve
done your due diligence so a lot

of people talk about shadowing.

Shadowing is typically not

a requirement for programs.

It’s something that’s kind of

like icing on top of the cake.

You know,

it shows that you’ve done your homework.
You know what’s involved in a day in the life of a genetic counselor. You know that this is what you understand. A counseling session to be. So if you’re not able to shadow a counselor, can you interview one over the phone? Can you talk to one? Can you attend a session like this and SGC? Board and national side genetic counselors has a link that’s open to the public for the master Genetic counseling series and basically this shows three simulated genetic counseling sessions in different disciplines. There about 30 minutes apiece and
02:25:26.252 --> 02:25:28.863 you get to watch them from start to
NOTE Confidence: 0.8646686
02:25:28.863 --> 02:25:31.054 finish and really get a feel for
NOTE Confidence: 0.8646686
02:25:31.054 --> 02:25:33.400 for what happens in sessions.
NOTE Confidence: 0.8646686
02:25:33.400 --> 02:25:35.488 Trying to keep this moving along.
NOTE Confidence: 0.8646686
02:25:35.490 --> 02:25:39.300 OK, so Step 4 you need to listen to my dad.
NOTE Confidence: 0.8646686
02:25:39.300 --> 02:25:41.729 That’s my dad and my son Nicholas.
NOTE Confidence: 0.8646686
02:25:41.730 --> 02:25:44.250 My dad always gave great great advice.
NOTE Confidence: 0.8646686
02:25:44.250 --> 02:25:45.678 And he always said to me,
NOTE Confidence: 0.8646686
02:25:45.680 --> 02:25:47.108 a good job is worth doing.
NOTE Confidence: 0.8646686
02:25:47.110 --> 02:25:48.062 It’s worth doing right?
NOTE Confidence: 0.8646686
02:25:48.062 --> 02:25:49.490 So don’t halfass anything when it
NOTE Confidence: 0.8646686
02:25:49.532 --> 02:25:50.906 comes to this application at all.
NOTE Confidence: 0.8646686
02:25:50.910 --> 02:25:51.143 Really,
NOTE Confidence: 0.8646686
02:25:51.143 --> 02:25:53.007 what you need to do is have everything
NOTE Confidence: 0.8646686
02:25:53.007 --> 02:25:54.208 be very, very, very purposeful,
NOTE Confidence: 0.8646686
02:25:54.208 --> 02:25:56.094 and if right now is the time at
which you’re saying, hey,
I want to be a genetic counselor,
I want to go to grad school.
I want to be on track for this
and everything you have to do has
to kind of roll into that goal.
So if you’re going to look for
make it related to genetic counseling.
If you’re going to get a summer job,
make it something that’s useful
or helpful to meeting that goal
of becoming a genetic counselor.
So a little bit of
kind of random information,
and I did see something in the chat come through about this. Taking a year off or two. Like, what do you think about gap year? So I think students have a lot of fears about a gap year in terms of how’s it going to be viewed if I take a year off? No? I mean applicants who take gap years actually being pretty favorably, you know, depending on what you do with that gap year, maybe you work, so you’re going to become a little bit more professional. You’re going to have a little bit
more of a professional work ethic, and it all depends on how you. What you're doing in that gap year, but I think if your purpose is to prepare yourself for grad school, this is not a negative on a resume whatsoever. If you didn't get accepted to a program, seek feedback.

So if you went through this application process and you don’t match where you don’t get an interview or you do get an interview but don’t get matched, you know either way you should be calling the program Director after
Match Time is over to say hey,

NOTE Confidence: 0.83773416

what can I do is as an applicant

NOTE Confidence: 0.83773416

you saw my application,

NOTE Confidence: 0.83773416

where were the gaps where the holes?

NOTE Confidence: 0.83773416

It could be something that you

NOTE Confidence: 0.83773416

have no idea about your personal

NOTE Confidence: 0.83773416

statement you may think is garbage,

NOTE Confidence: 0.83773416

but they may think is amazing,

NOTE Confidence: 0.83773416

but you had a 3.1 GPA instead of,

NOTE Confidence: 0.83773416

you know something that they

NOTE Confidence: 0.83773416

were more looking for,

NOTE Confidence: 0.83773416

so it might not be something

NOTE Confidence: 0.83773416

that’s on your radar.

NOTE Confidence: 0.83773416

So definitely get back.

NOTE Confidence: 0.83773416

Familiarize yourself with the

NOTE Confidence: 0.83773416

profession we talked about that we
02:27:29.991 --> 02:27:31.527 talked about going to nscc.org read
NOTE Confidence: 0.83773416
02:27:31.527 --> 02:27:32.551 some genetic counseling literature,
NOTE Confidence: 0.83773416
02:27:32.560 --> 02:27:34.036 watch the master Genetic counseling series.
NOTE Confidence: 0.83773416
02:27:34.040 --> 02:27:35.666 All of these show programs that
NOTE Confidence: 0.83773416
02:27:35.666 --> 02:27:37.205 you’re invested and that this is
NOTE Confidence: 0.83773416
02:27:37.205 --> 02:27:38.829 the career that you want to do and
NOTE Confidence: 0.83773416
02:27:38.881 --> 02:27:40.429 try and visit programs you know.
NOTE Confidence: 0.83773416
02:27:40.430 --> 02:27:41.665 COVID aside, if you could,
NOTE Confidence: 0.83773416
02:27:41.665 --> 02:27:42.890 I think things are starting
NOTE Confidence: 0.83773416
02:27:42.890 --> 02:27:44.605 to open up a little bit more.
NOTE Confidence: 0.83773416
02:27:44.610 --> 02:27:47.070 You may be able to do some things in person,
NOTE Confidence: 0.83773416
02:27:47.070 --> 02:27:47.883 but if not,
NOTE Confidence: 0.83773416
02:27:47.883 --> 02:27:50.432 make a phone call and make a zoom
NOTE Confidence: 0.83773416
02:27:50.432 --> 02:27:52.440 appointment. And you can do this.
NOTE Confidence: 0.83773416
02:27:52.440 --> 02:27:53.292 It’s not impossible.
NOTE Confidence: 0.83773416

234
I know we talk about it. It's a huge process and a big endeavor. But it's possible. Awesome speakers have gone through this. We understand and empathize completely with this process. So please try to stay positive. Connect with us if you need any assistance. Work hard and you'll make it happen. If you have questions, here's my email. I'm also available during the Q&A session at the end. If you have time for that, alright? Hopefully it'll take up too much time. I'm gonna stop sharing now.
That that was great, Maria.
I think you've got a lot of questions coming in.
I'm afraid I won't be able to pose them all to you live, but if you want to ruminate on those coloring,
I'll let you take it from here.
OK, can you hear me?
Can you see? Yeah, OK great.
So my name is Colleen Doherty.
I am the assistant program director and the clinical coordinator for the Bay Path University Master of Science in Genetic Counseling Program and I'm here today to talk to you about
02:28:58.722 --> 02:29:00.835 is Maria just went through like
NOTE Confidence: 0.93150884
02:29:00.835 --> 02:29:03.714 how to pick a program and you go
NOTE Confidence: 0.93150884
02:29:03.714 --> 02:29:05.820 through that match process and you
NOTE Confidence: 0.93150884
02:29:05.820 --> 02:29:07.600 know congratulations now you match.
NOTE Confidence: 0.93150884
02:29:07.600 --> 02:29:10.216 Now, what like what are you going to
NOTE Confidence: 0.93150884
02:29:10.216 --> 02:29:12.917 expect once you get into Graduate School?
NOTE Confidence: 0.93150884
02:29:12.920 --> 02:29:15.848 And while I am representative of Bay Path?
NOTE Confidence: 0.93150884
02:29:15.850 --> 02:29:18.307 And we are one of those online
NOTE Confidence: 0.93150884
02:29:18.307 --> 02:29:20.930 programs which I think was a question
NOTE Confidence: 0.93150884
02:29:20.930 --> 02:29:23.400 that was asked along the side of
NOTE Confidence: 0.93150884
02:29:23.400 --> 02:29:24.950 a path in Boise State.
NOTE Confidence: 0.93150884
02:29:24.950 --> 02:29:27.750 Most of the other programs are on ground.
NOTE Confidence: 0.93150884
02:29:27.750 --> 02:29:30.284 I am going to try and represent
NOTE Confidence: 0.93150884
02:29:30.284 --> 02:29:32.298 all programs as best I can.
NOTE Confidence: 0.87771106
02:29:34.530 --> 02:29:36.882 So the first part about when
NOTE Confidence: 0.87771106
02:29:36.882 --> 02:29:38.837 you get into grad school,
02:29:38.840 --> 02:29:41.186 you know when you have applied,
02:29:41.190 --> 02:29:43.936 you get in some of you have
02:29:43.936 --> 02:29:45.900 asked about that summer before.
02:29:45.900 --> 02:29:47.982 There are some prerequisites that
02:29:47.982 --> 02:29:50.907 programs will allow you to take in
02:29:50.907 --> 02:29:52.956 the summer prior to matriculate ING.
02:29:52.956 --> 02:29:55.732 I know that we accept students without
02:29:55.732 --> 02:30:01.580 and we allow them to take it over the summer,
02:30:01.580 --> 02:30:03.701 knowing that it must be
02:30:03.701 --> 02:30:05.489 completed prior to matriculation.
02:30:05.490 --> 02:30:07.030 Every program is going to
02:30:07.030 --> 02:30:08.530 be different in that regard,
02:30:08.530 --> 02:30:10.850 so I don’t think we can answer that
02:30:10.910 --> 02:30:13.164 question for everyone and you just have
02:30:13.164 --> 02:30:15.344 to reach out to each individual program.

NOTE Confidence: 0.87771106

02:30:15.344 --> 02:30:17.493 But once you start in a program,

NOTE Confidence: 0.87771106

02:30:17.500 --> 02:30:19.649 there’s the one aspect of the program

NOTE Confidence: 0.87771106

02:30:19.649 --> 02:30:21.194 will be the didactic education.

NOTE Confidence: 0.87771106

02:30:21.194 --> 02:30:24.122 And So what I mean by this are the actual

NOTE Confidence: 0.87771106

02:30:24.122 --> 02:30:26.122 courses that you’re going to take.

NOTE Confidence: 0.87771106

02:30:26.122 --> 02:30:28.416 So what kind of curriculum can you

NOTE Confidence: 0.87771106

02:30:28.416 --> 02:30:31.008 expect when you get to a program face

NOTE Confidence: 0.87771106

02:30:31.008 --> 02:30:33.518 to face or on line whichever way it is,

NOTE Confidence: 0.87771106

02:30:33.520 --> 02:30:34.820 whatever modality is used,

NOTE Confidence: 0.87771106

02:30:34.820 --> 02:30:36.120 you should be getting.

NOTE Confidence: 0.87771106

02:30:36.120 --> 02:30:37.828 Courses in Human Genetics

NOTE Confidence: 0.87771106

02:30:37.830 --> 02:30:39.106 and genetic counseling.

NOTE Confidence: 0.87771106

02:30:39.106 --> 02:30:40.390 Biochemical metabolic genetics,

NOTE Confidence: 0.87771106

02:30:40.390 --> 02:30:41.686 cytogenetics, and molecular.

NOTE Confidence: 0.87771106

02:30:41.686 --> 02:30:44.284 There’s been a lot of questions
about statistics and risk assessment and that that should all be included in these courses as well.

Most programs, even if you have to have an Embryology as a prerequisite, will do some more Embryology and teratology. Gee, they’ll be research methods courses. These also can include the statistics, and I’m only bringing that up because I did see that come through quite a few times in the question and answer about the the math portion. You might have an evidence based medicine course, so this will be to help instruct you into your capstone.
Will get to that as well,

but many programs, most programs require some kind of research product or Capstone product.

And then there are usually some very specific courses on kind of the more the larger scope.

Genetic counseling specialties such as reproductive genetics, cancer, genetics and then medical genetics, which encompasses oftentimes the metabolic and biochemical genetics as well.

Some of the other courses that you can expect to have in a didactic manner will be your psychosocial courses, so you’ll get like ethical legal
02:31:59.458 --> 02:32:01.828 and social issues in genetic counseling there should be.

02:32:01.828 --> 02:32:03.736 Several psychology courses,

02:32:03.740 --> 02:32:05.162 many that deal with the psychology of grief and loss and bereavement.

02:32:05.162 --> 02:32:08.006 Family dynamics across the lifespan and more importantly,

02:32:08.006 --> 02:32:10.817 social and cultural awareness courses.

02:32:10.820 --> 02:32:12.706 A lot of programs will try to thread that kind of conversation throughout your education,

02:32:12.706 --> 02:32:14.598 but some programs also have a specific course on this as well.

02:32:14.600 --> 02:32:16.960 Some of the other.

02:32:16.960 --> 02:32:19.515 A lot of programs will try to thread that kind of conversation throughout your education,

02:32:19.515 --> 02:32:22.035 but some programs also have a specific course on this as well.

02:32:22.035 --> 02:32:24.040 although other programs also have a specific course on this as well.

02:32:24.040 --> 02:32:27.032 Some of the other.

02:32:27.032 --> 02:32:30.824 Didactic or curriculum areas that
You might come across are some programs that might have you do some business or management skills, some discussion on professional issues. How to when I say education and advocacy and public health like how can you participate in the broader spectrum of Medical training and in the community as well. Next, after your didactic education, that’s how most programs start, and then you kind of move on into while you’re doing some of this didactic work, you start doing what we call your clinical field work, rotations, or like which are either patient.
facing or non patient facing, and you’ve heard some great discussions on what that encompass is, but I will just quickly do an overview because I do believe some people were wondering like what kind of exposures do you get as a student? And so in clinical.

In order to become the just to back up a second in order, the goal is for everybody to be board eligible when they graduate and there are specific standards that must be met in order for a student to graduate to be board eligible and a lot of that
02:33:48.350 --> 02:33:50.050 involves your clinical patient facing
NOTE Confidence: 0.8771303
02:33:50.050 --> 02:33:52.188 field work and every student has
NOTE Confidence: 0.8771303
02:33:52.188 --> 02:33:54.068 to have 50 participatory encounters
NOTE Confidence: 0.8771303
02:33:54.068 --> 02:33:56.417 that document that they are trying to
NOTE Confidence: 0.8771303
02:33:56.417 --> 02:33:58.609 advance through a very specific set of
NOTE Confidence: 0.8771303
02:33:58.609 --> 02:34:00.591 practice based competency’s I know that.
NOTE Confidence: 0.8771303
02:34:00.591 --> 02:34:03.188 Maria and I think in the Q&A
NOTE Confidence: 0.8771303
02:34:03.188 --> 02:34:05.386 I also put the GC education.
NOTE Confidence: 0.8771303
02:34:05.386 --> 02:34:07.198 That’s the Accreditation Council of
NOTE Confidence: 0.8771303
02:34:07.200 --> 02:34:09.379 Genetic Counselors website and they list
NOTE Confidence: 0.8771303
02:34:09.379 --> 02:34:11.557 what these practice based competencies are.
NOTE Confidence: 0.8771303
02:34:11.560 --> 02:34:13.380 But students are expected to
NOTE Confidence: 0.8771303
02:34:13.380 --> 02:34:15.552 become proficient in each areas of
NOTE Confidence: 0.8771303
02:34:15.552 --> 02:34:17.008 these practice based competencies,
NOTE Confidence: 0.8771303
02:34:17.010 --> 02:34:19.549 and you do that through a combination
NOTE Confidence: 0.8771303
02:34:19.550 --> 02:34:20.890 of all these things,
not the least of which is the clinical field work experiences. So to do that, you have to have these 50 cases and they have to be across all a wide range of specialties. So in most programs will offer three kind of basic rotations clinically. One would be general or pediatric, another would be prenatal reproductive genetics. In a third would be cancer, and you’ve heard speakers speak on all of those. There’s also usually time worked
in to carve out some space.

If somebody has a specific specialty that they’re interested in.

And I’ve listed a few here. You heard Arpita talk about cardiovascular.

Many of our students have done rotations with Arpita and have found it extremely helpful in understanding how cardiovascular genetic program works.

Some of those are hard to find an an exposure and ability to find these for you.

So that’s something to look at when you’re trying to choose a program.
You also want to again kind of combine Maria stock in mind when you're considering this. You wonder how many will be onsite rotations? How many ortelle genetics? How many you simulated patients? And again, we all were Tele Genetics and simulated patients all last year. But that's you know, taking COVID out of it there. There are programs that do a little bit more Tele health than others, and more have on site. And what is going to be work best for you?
For non patient facing field work I think that Anthony spoke really well about what it’s like to be in a lab setting. We also have students who do lab settings where they’re just specifically doing very interpretation. We have some students who can do industry settings such as shadow and Myriad counselor. You know, in a Regional Medical specialist or something like emerging careers where you work with a group at Quest Diagnostics where you can understand where the future might be for an interview. Genetic
02:36:31.240 --> 02:36:33.240 counselors aware some future ideas

02:36:33.240 --> 02:36:36.516 might be and and more of a business aspect of genetic counseling and

02:36:38.516 --> 02:36:40.930 what your career could look like.

02:36:44.240 --> 02:36:46.238 So third part of a program will be what you know.

02:36:46.238 --> 02:36:47.898 We have referred to as either a research project or Capstone project.

02:36:47.900 --> 02:36:49.965 And again I heard somebody was asking about like how much research is done and what you do once you graduate.

02:36:49.965 --> 02:36:51.900 Sometimes is shaped based on what you get interested in in your graduate program but but not always.
But every graduate student is going to be required to do some sort of project I have indicated here. A list of some examples of needs for projects that came out of Bay Path, 'cause that's what I have access to. But you know, you can ask whatever program you're interested in on what are their projects of projects, but you know, we've had students investigate some direct to consumer testing, which is a really hot topic. Just some that focus just on the genetic counseling process. As you can see.
Perspectives on evolving technologies.

We had a student look into genetic counselors views on CRISPR.

We had one of our graduates who worked with the Yale Group on.

You know on going to gain a tumor and what the follow up was and how were those patients were appropriately referred?

And and you know most then most of these students are then encouraged to submit their work product to NSCC to see if they can get paper out of it or presentation at the national meeting.

But this is just an example
of what students are doing.

There's a wide variety and many are coming out this year about, you know, COVID and Tele health, and so it'll be a lot of more interesting things that are coming out of all the programs.

And the last section that you know you could expect in a program. Some programs require some kind of volunteering or professional development and activities.

What we do specifically, we have two onsite weekends a year.

Again, you know, in the before times and pre COVID now
02:38:53.518 --> 02:38:56.496 are on sites are they’ve been remote.

02:38:56.500 --> 02:39:00.788 But where we have a weekend where everybody

02:39:00.788 --> 02:39:03.620 comes together and we talk about.

02:39:03.620 --> 02:39:05.510 You know self care professional development.

02:39:05.510 --> 02:39:08.030 We do activities we you know if there’s

02:39:08.030 --> 02:39:09.950 anything that new that’s happened again.

02:39:09.950 --> 02:39:12.260 Another question was how do you keep

02:39:12.260 --> 02:39:14.646 on top of this in the education system?

02:39:14.646 --> 02:39:17.170 Will then we try to institute that then?

02:39:17.170 --> 02:39:19.060 If it’s something that’s very new,

02:39:19.060 --> 02:39:20.878 like recently the AC MG changed

02:39:20.878 --> 02:39:23.469 the 59 to 74 just the other day.

02:39:23.470 --> 02:39:26.143 So you know we’ve got to work better and

02:39:26.143 --> 02:39:28.206 somehow and that’s you know until you

02:39:28.206 --> 02:39:30.723 can work it into your curriculum, you
have to have spots where you can discuss it.

We there's journal clubs.

That’s often a way that these kind.

This kind of information is shared as well, and you’ll soon see two of our rising second year students who are doing some volunteering right after me.

But the goal of all of this is to graduate genetic counselors, who are what we considered board eligible. And again there were a couple of questions about how to be able to take the boards, but you have to come through a board or I’m sorry,
an accredited AC GC accredited program in order to be considered board eligible and to sit for the board exam. The board exam is offered post graduation. It’s offered in August and in February, so twice a year and you must pass that to be board certified. There are some states in which you can work if you are considered board eligible, but there are in order to get licensure, there’s typically a certain amount of time that you have in order.
to pass that board exam and and

NOTE Confidence: 0.892021

02:40:43.029 --> 02:40:45.019 to be able to be employable.

NOTE Confidence: 0.892021

02:40:45.020 --> 02:40:47.668 That’s going to vary from state to state.

NOTE Confidence: 0.8482787

02:40:50.320 --> 02:40:52.480 And again I just put in

NOTE Confidence: 0.8482787

02:40:52.480 --> 02:40:54.008 some resources as well.

NOTE Confidence: 0.8482787

02:40:54.008 --> 02:40:56.300 I guess what I also wanted

NOTE Confidence: 0.8482787

02:40:56.381 --> 02:40:58.600 to say here is that you know.

NOTE Confidence: 0.8482787

02:40:58.600 --> 02:40:59.908 So once you graduate,

NOTE Confidence: 0.8482787

02:40:59.908 --> 02:41:01.870 there’s still one more step to

NOTE Confidence: 0.8482787

02:41:01.939 --> 02:41:03.639 becoming a board certified,

NOTE Confidence: 0.8482787

02:41:03.640 --> 02:41:04.908 like like many other,

NOTE Confidence: 0.8482787

02:41:04.908 --> 02:41:06.493 like PT or many other

NOTE Confidence: 0.8482787

02:41:06.493 --> 02:41:07.960 health care disciplines,

NOTE Confidence: 0.8482787

02:41:07.960 --> 02:41:10.158 you have to take a board exam

NOTE Confidence: 0.8482787

02:41:10.158 --> 02:41:12.640 in order to be fully certified.

NOTE Confidence: 0.8482787

02:41:12.640 --> 02:41:14.440 But Maria also discussed this.

257
There’s some great resources on SGC page. This is just a picture of what that master genetic counseling series looks like. There’s also web and R of a day in the life of genetic counselors, and I also would direct you. You know there’s a lot of great social media out there where genetic counselors play a big role. Like on Twitter, there’s hashtag, GC chat. There is a discord channel that actually is moderated by a recent grad and Baker Baker program, and they are. That’s really great.
Like I am not on that.

None of the programs are on that because it’s a really great private way to ask some good questions and you can get some really good student feedback on there as well.

So I’m offering up my email. Please email me if you have any questions on what to expect in Graduate School between Maria myself. We can answer some questions about different programs, but the best way if you have a specific question about a specific program is to look up their website and go directly to them.
Thanks Colleen Ann. I do want to clarify for everyone that I will be sharing our speakers email addresses. They've all kindly volunteered to share that information with you all, so I'll have that up kind of in the background as we do the Q&A, but I'll let Paige and Mike take over for the next section. Makes you wanna go first.

My name is Mike Peracchio.
I am a now second year student and the Master of Science in General Accounting Program at Bay Path University. So I just wanted to talk a little bit about my path to Bay Path. I'm more of a non traditional student and so I've had kind of a bunch of different shifts in my career along the way, so I thought I'd just tell you a little about that and then, Talk to you about a little bit about my experience in the Bay Path program so far, and kind of how I've been, you know, balancing all the different aspects of my life while also then. Grad school for genetic counseling.
So education I got my bachelors degree in ecology and evolutionary biology back in 2003. I said it’s been a long Rd. And I ended up going after school. I did some traveling and ended up going into teaching, so I went back to school and got certified to teach high school biology. Went back to school and got certified to teach high school biology. So that was my degree here and then I went back to grad school again at UConn. And now on that day, pass. I do want to be clear and in no way do you need to have multiple masters degrees in order to apply.
for an account link program.

This is more just a product of my searching to find the career that was really going to be the best for me, which has taken me a little while, professionally, my background. Yeah, professionally, my background. As I said, I ended up becoming a high school biology teacher and I. I taught all levels of high school biology from freshmen and sophomores, kind of general to AP biology so many different levels, which is something that I think is. I have found to be, you know,
a useful skill for genetic counseling because I had to, you know, learn how to teach genetics concepts and other complex science concepts too. To all levels of students and people without much background in those topics. And so that’s something that I think we do everyday, is down to counselors as well. Is trying to explain some of these concepts to people who don’t have a background in. In science or genetics? So I end up leaving. My high school teaching when I started teaching AP Bio,
I kind of got interested. It kind of made me want to get back into going a little deeper in the science and I actually kind of want to teach at the college level. So I went back to UConn in a pro at this originally in PhD program and genetics, and so I was doing genetics research and so I was doing genetics research as part of my grad school on small RNAs in a basic research lab at the University of Connecticut. And I, you know, found out that that wasn’t. Quite where I wanted to be either, so I so I graduated with a masters degree and got a job in a clinical lab and I’ve found my interests were more.
In the clinical side of things, then kind of the basic research I started working at the Mount Sinai genetic testing labs in Connecticut and that was part of the Mount Sinai Hospital system in New York City, and so I was working in the laboratory technologist there, and so I’ve kind of been in three different labs and devolved in slightly different types of labs. So Mount Sinai that was a non-profit hospital based lab. I then was at the Jackson Laboratory.
Which is a nonprofit research academic lab. So they have much more for research and academic focus. So I but they do have a small clinical genomics lab and so that’s where I was working when I was there was in the clinical lab and then I. Most recently went to a private company called Semaphore which was actually that same Mount Sinai lab, but it converted into a private company and so now you know I work for a more for profit commercial company, so I’ve kind of been in all the different types of labs and so it’s been interesting to kind of get.
02:47:51.346 --> 02:47:53.704 the perspective of each of those.

02:47:53.710 --> 02:47:55.906 And another thing I think this

02:47:55.906 --> 02:47:58.144 informed me for, you know something

02:47:58.144 --> 02:48:00.034 that’s relevant to counseling is.

02:48:00.040 --> 02:48:02.035 And I’ve got a good understanding of,

02:48:02.040 --> 02:48:03.756 you know, as a genetic counselor,

02:48:03.760 --> 02:48:05.344 when you order some of those

02:48:05.344 --> 02:48:06.900 genetic tests for a patient,

02:48:06.900 --> 02:48:08.990 you know I have a good idea of you know

02:48:09.045 --> 02:48:10.683 what that means and what’s actually

02:48:10.683 --> 02:48:12.926 going on in the laboratories where those

02:48:12.926 --> 02:48:15.110 tests are being performed and those

02:48:15.110 --> 02:48:16.910 results are being reported out from.

02:48:20.540 --> 02:48:22.165 As far as my application

02:48:22.165 --> 02:48:23.790 process to Bay Path suggested,
counseling was something I was always interested in, and when I finished my undergrad, but it still wasn’t a huge field and it’s obviously exploded in the last five or ten years, and so it was something I was always a little interested in but just didn’t know much about and never really pursued it too strongly. And then I started interacting with some Jenna counselors in the labs that worked at and someone I worked
closely with actually applied for the Bay Path program and she actually just graduated from the path program. And so you know, I got a good sense of what that was all about, and. So I really decided that I was going to pursue this and. You know, so some of the things that I can’t talk about. Hopefully, you know page might be able give you more insight on applying to multiple programs. For me there were really only at
the time to online programs in the country and Boise State and they pass and for me you know I needed to be able to keep working. A lot and I have three young kids at home, so I really wasn’t. Didn’t see that I was going to be able to do an on site program and so for me I basically kind of had those as my two options and. I applied the base half. You know ’cause I had heard good things. I lived near there and so I actually knew some of the people who are very familiar with the program. And when I was working production laboratory,
the program director actually brought a group of students from the PATH program to tour our clinical lab, and I gave them this horrible AB so it’s able to meet some people from the program and. And so I had a good sense. So you know, some of the things I think that were strengths for me when I applied is my varied experience. So as I mentioned before, you know, working as a teacher and work in the lab give, I think, 2 unique kinds of experience.
You know that piece were in the counselors or explaining genetics concepts to patients. My education background I thought was useful for that and the lab experience to, to really know the back end of. What happens when we order tests for our patients? And so I think those were good experience to have. I also you know I did some traveling after college and talked about that a little in my personal statement about how it kind of gave me a broader perspective on different
cultures and different people around the world and just kind of, made me a more well rounded individual just in general.
And then some observation and networking. So I did have a chance to observe a genetic counselor in cancer genetics only a couple of times before I applied. But as I said, I also kind of got to know some people.
You know involved with the Bay Path program and the UConn program that they interact with.
put on and so I mean I think it always helps to get to know whoever you can and generate counseling world.

Still, a pretty small world, so in whatever area you live in, I feel like a lot of the counselor sent to to know each other because it's still a relatively small world, so it's good to just get to know whoever you can. And then you know, I think when it comes to your personal statement and your interviews just being authentic is probably the most important thing, you know,
just you know, don’t tell him what you think they want to hear so much as just tell them about yourself. Tell them why you think you would be a good fit for their program and why you think that you would. You know Jenna counseling would be a good career for you and you know what personal experiences you have. You think make you a strong candidate and would be relevant to going into that career. And I think that’s. Probably the best advice I can get
as far as the application process goes.

So as far as now that I'm in the Bay Path program,
you know some things that work for me.
The online aspect of it really allows a lot of flexibility and you know, the program directors are, you know, really accommodating and flexible,
really accommodating and flexible,
and they're willing to work with you. And really, they want everyone to succeed,
and they're really great about you know, doing everything they can to work
with people to make sure everyone is succeeding and getting the most out of their experience.

Time management is definitely key.
You know I’m working full time so far and it’s a full time program. As I mentioned, I have three young kids so you know I will say it’s been pretty intense balancing all of that. But you know, I’ve survived. I’m still doing it and I’m learning a lot and really enjoying it. So it’s definitely. It’s definitely something you can do. And. One other great thing about the Bay Path program is it’s, you know, pretty small group and we’re very.
It’s a very tight knit group and we’re very supportive of each other and it’s almost like a family atmosphere where really everyone students and program directors and instructors is really invested in making sure everyone succeeds. So if at any time you know you’re having a struggle with something, you can just reach out to any of your classmates or did any of the program directors and someone is going to help you out. And help you figure things out and get through things, so that’s been a great part.
02:54:16.890 --> 02:54:18.180 of the program for me.

02:54:20.560 --> 02:54:22.909 So yeah, I mean this is my average day, so we just finished the first

02:54:22.910 --> 02:54:24.476 year this past semester.

02:54:24.476 --> 02:54:25.520 We had classes, so I would go to work.

02:54:25.520 --> 02:54:27.869 I have a long commute too,

02:54:27.870 --> 02:54:33.426 so it just kind of adds to my time.

02:54:33.430 --> 02:54:36.160 I'd come home help with my kids

02:54:36.160 --> 02:54:38.930 and then get to work at night.

02:54:38.930 --> 02:54:39.860 Usually reading,

02:54:39.860 --> 02:54:41.720 watching lectures and videos

02:54:41.720 --> 02:54:43.580 or completing assignments and

02:54:43.650 --> 02:54:45.546 then this past semester we had

02:54:45.546 --> 02:54:47.190 to do 10 observation days.

02:54:47.190 --> 02:54:49.150 So we just finished that.

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And so I was able to observe various specialties and various student counselors and then. Starting next week we go into our next semester and we’ll have our full clinical rotations, which is about two to three days a week, and so I’m going to have to. At this point I’ll be going down to two more like two or three days a week as well, because you just need to have that. All the extra clinic time you know will make working full time at this point pretty difficult, but.
That’s about all I have, so my email address is here as well, so if anyone has any questions, happy to answer. Or if you want to email me on the side. I’m happy to answer any questions or tell you more about. My experience is so thank you.

Thanks Mike page. Do you wanna wrap us up here before our Q&A? Yes, so let me share my screen. Let’s see. OK, can everybody see that right? Yep, awesome. So my name is Paige Clique.
I live in Sacramento, CA and like Mike just said we just finished our first year at Bay Path University. My slides aren't super exciting so don't get your hopes up for this, but I'll give you a little bit of my background and kind of share my story and my experiences. In 2017, I graduated from BYU, Hawaii with a bachelor's degree in biomedical sciences with a minor in biochemistry. I actually thought that I wanted to be a medical geneticists. I applied to medical school but kind of partly through that process.
I realized that that’s not really what I wanted to do an I preferred the genetic counselor aspect of patient care better and kind of switched gears a little bit there. So in the fall of 2018, I applied to the boy C state program an like Mike. I wasn’t really in a position to be able to move and attend an interesting program, and I didn’t even know of the Bay Path program at that point, so I applied to boy, see, I interviewed with them, but I do not match. And the following year I applied to both Boise anbe path.
I interviewed at both of them and
then of course I matched at Bay Path, which was my first choice. And so you know,
there are some of you listening that have applied before and some of you who will probably experience that in the future. And that’s a horrible feeling. I think I’ll always remember how disappointed I was in myself. That first match day when I didn’t match and it’s OK to be disappointed. It’s OK to be sad and take a moment to feel those feelings,
but you need to pick yourself up and figure out what you need to do to make yourself more prepared for next time. And I just want to add that it’s not necessarily about making yourself look better as an applicant and making the schools like you, but it’s really about preparing yourself to begin grad school and actually being ready for that.

So during my undergrad I was a tutor for the genetics class at my university, but aside from that I didn’t really have a lot of work experience that
was directly related to genetics,
NOTE Confidence: 0.8545573
so a lot of my current classmates have worked
NOTE Confidence: 0.8545573
in a lab like Mike or word bcas before,
NOTE Confidence: 0.8545573
and I did not have an opportunity
NOTE Confidence: 0.8545573
for any of those jobs.
NOTE Confidence: 0.8545573
So if you’re in a position like me
NOTE Confidence: 0.8545573
where you don’t feel like you have
NOTE Confidence: 0.8545573
that job experience that’s directly
NOTE Confidence: 0.8545573
related to genetic counseling.
NOTE Confidence: 0.8545573
Don’t worry about it.
NOTE Confidence: 0.8545573
I did learn a lot of skills in my
NOTE Confidence: 0.8545573
other jobs that can be applied
NOTE Confidence: 0.8545573
to genetic counseling.
NOTE Confidence: 0.8545573
So if you’re in that position,
NOTE Confidence: 0.8545573
just make sure that in your
NOTE Confidence: 0.8545573
application in your
02:58:51.730 --> 02:58:52.711 interview that you're able to express how those unrelated jobs can help you both.

02:58:54.310 --> 02:58:56.306 As a grad student and as a future GC so you don't have to have those specific job experiences and genetics. Going on to what I did and then also what I did to improve myself after not matching before I applied again.

02:59:05.480 --> 02:59:07.160 Of course the number one thing is shadowing.
had shadowed at one clinic and I was there for a month. But I still felt like when I was applying again, I needed to have a little bit more of a varied experience just to help me know really what to expect from how different clinics run as well as just to have something else to add to that resume. So I shot out two additional clinics, all of which were Pediatrics, which is what I want to work in, so that’s just helpful to see how different institutions and providers do things. I’ll go through this other stuff.
pretty quickly, ’cause Maria kind of gave you a pretty good. I also attended some conferences like the Muscular Dystrophy. There was an event very similar to this that I attended in person that was in the Bay Area of California a couple years ago. Outside of my normal volunteer work, I did not have any specific crisis counseling the first time I applied, so I went through a crisis training and began volunteering with the
California Youth Crisis line.

And then the most comprehensive part of my application was my volunteer work.

So these are just a few of the logos from some of the organizations that I volunteered with, so I don’t need to go into this too much. But you can see I have a mix of a lot of different things, so while I do have some organizations that are related to more genetic things like muscular dystrophy, of course the American Cancer Association as well. There are some other things in there as well, so it is important for me to be more
well rounded and have a variety of different experiences volunteering. And then going on to what I do now every day I have a 9 month old daughter. She was two months old when I started my program and so I love our online format because it allows me to do my schoolwork while she’s not being, or she spends a lot of time just sitting on the floor next to me playing while I’m doing my work. So if she needs me, I can stop what I’m doing and come back to it later. So that is one reason that I really love our program and the online format of it because.
I don’t have to leave my baby and I don’t have to go sit in class all day, so I would guess that I spend about 25 hours a week on school. I asked my husband. He thinks I spend a lot longer than, but I would say about 25 hours, maybe longer, but I do get interrupted a lot because of my baby. So you probably could get all of your work done faster if you’re able to have uninterrupted time. That set aside and focus on that. Some of the things that we do in our program. Of
course, we watch our lectures.

Those are almost all pre recorded so you can watch it on your own time like Mike has to go to work during the day.

He can do it later at night.

Everybody in our program has a different situation.

There are some of our classmates still work.

A lot of us have kids, everybody’s different. So it’s really a great way to be able to personalize our experience. And be able to make it work with our own needs and our schedules.
so we watch lectures. We have chapters that we read in our textbooks, other articles. Sometimes there are supplementary videos. Most of our assignments are due Sunday, so we have the whole week to work on it. Discussion boards we do where we answer the question. We respond to our classmates. We have a lot of group projects that we do. We work together a lot with our classmates. We do role plays or one of us is a genetic counselor. One of us is the patient just to practice some of those skills. We have video presentations where
we record ourselves giving the presentation for our classmates to watch all the other assignments, quizzes, tests, things that you would expect from a program. Something that I wish I knew. I get this question.

I’ve talked to some applicants before and they always ask me what I wish I knew.

While our program isn’t easy, it definitely isn’t easy by any means. There is a lot of work. It’s doable.
wonderful. We love them there. They’re very flexible. They are very easy to get a hold of. If we need anything we can reach them easily and they’ll help us with whatever we need. Like Mike said, everybody wants us to succeed. Nobody’s out to get us. Very helpful if we need anything like I said, So what I wish I knew is that is not as scary as people make it up to be an our faculty. They treat us like professionals and like adults, not like little kids, which is great. And
that’s of course how it should be.
So just one tip that I have is to plan your week out ahead of time. Like touched on, this is crucial because it is a lot of work and it’s a lot of material to cover. And if you wait until the last minute, it’s definitely not going to work out very well for you and then again, another tip I have is if it’s been awhile since taking some of those fundamental classes like genetics or Embryology, maybe brush up a little bit on
those before starting your program.

I think that’s everything that I have to say, but here’s my email address if you have any specific questions for me, or if you need any help with anything.

Alright, and that brings us to our official Q&A section. Like I said, I will put up everyone’s emails here. I just ask that you all as participants be mindful that as much as we would love to have a shadowing opportunity for every single one of you that is just not something that we can accommodate at this time. So feel free to email our panelists today.
if you have any particular questions, maybe about their experience or something that they had talked about, or a follow-up question that isn’t addressed during this portion. But if you do ask about shadowing opportunities, we’re all going to say the same thing, so we’d appreciate it if you just Be mindful of that, and of course if you have any questions more generally, you can send me an email and my email is down here. But I think to start the Q&A
03:05:45.800 --> 03:05:48.149 just wanted to turn it over to the
NOTE Confidence: 0.90188515
03:05:48.149 --> 03:05:50.185 panelists to say if there’s anything
NOTE Confidence: 0.90188515
03:05:50.185 --> 03:05:53.083 that they had forgotten to talk about.
NOTE Confidence: 0.90188515
03:05:53.090 --> 03:05:54.740 Or seeing these questions if
NOTE Confidence: 0.90188515
03:05:54.740 --> 03:05:56.060 that brought up something,
NOTE Confidence: 0.90188515
03:05:56.060 --> 03:05:57.710 anything that you would like
NOTE Confidence: 0.90188515
03:05:57.710 --> 03:05:58.700 to address before.
NOTE Confidence: 0.90188515
03:05:58.700 --> 03:06:00.680 I guess we just start picking.
NOTE Confidence: 0.90188515
03:06:00.680 --> 03:06:02.000 Start picking different questions.
NOTE Confidence: 0.90188515
03:06:02.000 --> 03:06:02.660 Sure I
NOTE Confidence: 0.85876554
03:06:02.660 --> 03:06:03.980 can. I just address
NOTE Confidence: 0.85876554
03:06:03.980 --> 03:06:06.572 the match system because I feel like a
NOTE Confidence: 0.85876554
03:06:06.572 --> 03:06:09.259 couple of people have asked in the Q&A.
NOTE Confidence: 0.85876554
03:06:09.260 --> 03:06:11.444 So what the match system is anybody
NOTE Confidence: 0.85876554
03:06:11.444 --> 03:06:14.144 who wants to apply to a genetic
NOTE Confidence: 0.85876554
03:06:14.144 --> 03:06:15.836 counseling training program must.
They must register with the match company and you get a number. After that, every place you want to apply to, you must include this number. Once you go through the application process and if you get interviewed, you need to put your schools in order of where you would like to go. The schools will rank in order of the students they wish to have participate in the program, and those rankings are binding. The matching process typically happens around April 23rd ISH.
then it’s all put into a computer system and you’re matched up that way and it works out really well, but it is binding an. You do have to sign documents and you cannot like there’s no sneaking around the back and there’s no like saying oh I’m going to put you first. It’s like you have to follow the rules and it’s worked out pretty well. I think three years so it’s worked out well. Perfect yeah, I did see a lot of different questions about the match.
And I don’t know calling if you could speak to.

You know the percentage of second year applicants, or you know that you so gosh.

You know those numbers are out there? I don’t know them off the top of my head.

I know that consistently about 50% of applicants match, so I’m.

I don’t know them off the top of my head.

That’s OK, I’m sure there’s a lot of data on that,
but I think that’s something I had seen in the questions as well.

And for our practicing genetic counselors, there were a lot of questions about self care and burnout, and I know our team of panelists have been answering these questions throughout the Q&A.

But I do think it’s an important point to touch on. If anyone could talk about. Either at work or during their genetic counseling program, how? Burnout was approached and how we handle it and the field.

We talk to each other a lot. We talk to each other a lot. Very true, yeah. I was going
to say that burnout is.

It is definitely talked about in Graduate School, and it’s definitely something that occurs when you’re practicing. It is something that I think, and I entered this in a question, but it is something that you get better with dealing with and probably the. Thing that’s helped the most in terms of dealing with burnout is as just Arbiter said it actually talking about your experience with other.
genetic counselors has been a really great way to deal with burnout. I think it’s hard sometimes. You know we have friends and partners, but they not may not understand what we do and the burn out of it. So I think having a close group of genetic counselors that you feel comfortable sharing difficult cases and emotions has been a really great help and in general self care which can look different to other. Many different people, but it could be just. Turning off your computer, closing your computer at certain time
when you've hit 8 hours and saying I'm not checking my email This weekend, it could be putting your phone on silent.

It could be making time for lunch in the middle of the day. You wouldn’t think how some genetic counselors work through lunch, but really taking 30 minutes really makes a difference, so I can’t really speak to every sort of self care that helps. 'cause that's really individualized, but burnout is something that does happen. As a general counselor, it tends to come in different cycles,
different patterns, but it is something that is cope with and I'm not sure if.

Call collina Maria. Maybe can talk about how it’s addressed in in Graduate School specifically.

So we will go ahead. No, go ahead. I was gonna let you start since you have current students. We'll so we talk about it an what to do in like the introduction to field work. Modules like.

To pay attention to this, what you could do, we offer and debriefing meetings.
Every Wednesday when students are in their field, work with me and you know those are optional because we are an online program. We try to respect that. But, you know, as much as you can talk about it, it has to be done. And that’s the kicker. Is is actually doing it for yourself. And I think all of us. You know our our. Fall prey to that. I don’t have time to like. Do that exercise or do what I want. Make those cookies or whatever it is I want to do. I gotta do this work but like Amy
said you gotta shut it off and an
NOTE Confidence: 0.83620596
keep that time for yourself so.
NOTE Confidence: 0.8188241
I agree, yeah,
NOTE Confidence: 0.8188241
I totally echo your sentiments Colleen
NOTE Confidence: 0.8188241
and I know that this differs institution
NOTE Confidence: 0.8188241
institution in school to school,
NOTE Confidence: 0.8188241
how everybody chooses to to handle mental
NOTE Confidence: 0.8188241
health with with students for burnout.
NOTE Confidence: 0.8188241
You know, I mean, you can’t obviously
NOTE Confidence: 0.8188241
have a plan of what we would like
NOTE Confidence: 0.8188241
to do with our students and I can
NOTE Confidence: 0.8188241
speak about when I was in grad
NOTE Confidence: 0.8188241
school and that was very challenging.
NOTE Confidence: 0.8188241
But I think what it comes down to is,
NOTE Confidence: 0.8188241
is checkins, as you know,
NOTE Confidence: 0.8188241
kind of not relying on yourself all
03:12:04.648 --> 03:12:06.963 the time to know that you’re OK having
someone else checking on you and and
that should also be the role of faculty
and advisors is to do regular checkins
and make sure folks are OK and to you know,
respect boundaries.
I think it’s very easy,
like if I have time on a.
Saturday night, like a while,
I’m thinking of something.
Email someone and and you know,
maybe not think that they’re
going to look at it until Monday,
but they might and they might, as a student,
feel pressured to to respond right away.
NOTE Confidence: 0.8188241
So I think you know, faculty may need to make a good concerted effort to recognize the limitations of students, because I think it really starts there with the whole yes. Yes, yes, I'll do whatever I can because I want to show that I'm a good student and then you get into the workforce and it's like yes, yes I can. 'cause I want to be a genetic counselor and I want my boss to see that and we just don't really ever stop and we don't know how to say no.
So I think learning your own limitations is really the first step. I'm gonna jump in here as a manager to some of the people who are speaking today, and I think that's you know really, to piggyback off what Maria is saying is, you know, we have you know, monthly checkins with all my staff. You know, I kind of closely watched. Hey, you worked a lot last week. Tell me what happened. How can I help? What barriers or challenges are sort of adding to that kind of overtime because I think we want to be really cognizant of a good work life balance.
And you know that is really going to keep all of us, mentally healthy. An emotionally available to our patients who need us, you know, as was mentioned before, we also have incorporated a peer discussion group with our genetic counselors, so it’s an opportunity for them to really debrief on these difficult cases. The managers aren’t there, so they kind of made me feel a little bit less pressure to say, well, I wish I had done this and I probably should have done that, but I didn’t do it or I’m taking home.
03:13:47.720 --> 03:13:48.314 You know,
03:13:48.314 --> 03:13:50.096 this one patient and I just
03:13:50.096 --> 03:13:51.750 don’t know how to shake it,
03:13:51.750 --> 03:13:53.598 and it’s an opportunity for them
03:13:53.598 --> 03:13:55.399 to really talk through the case.
03:13:55.400 --> 03:14:00.266 And I think sort of let let it
03:14:00.266 --> 03:14:02.972 go and then hopefully over time
03:14:00.266 --> 03:14:02.972 that can help reduce the burden
03:14:02.972 --> 03:14:05.230 that they might be failing.
03:14:03.055 --> 03:14:05.230 There’s also a lot of resources within
03:14:05.230 --> 03:14:07.806 various organizations for employees,
03:14:07.806 --> 03:14:09.550 so you know there’s everything from
03:14:09.550 --> 03:14:11.962 meditation groups and mindfulness
03:14:11.962 --> 03:14:13.570 training and other resources that
03:14:13.636 --> 03:14:15.616 genetic counselors might even have
within their own institution that are available to help support them and deal and cope with some of the emotional. Burden that might come from, you know, working with patients with giving difficult news and all of that goes with it. So you know, I definitely encourage you know students and our perspective, genetic counselors or new genetic counselors in the field to really tap into those resources. ’cause that’s what they’re there for. Alex, can I just make that announcement real quick?
It's not handful of questions on being an international applicant or an international student. It's probably not within the scope of today's talk, but reach out to me. You know if you have any of those questions. I was an international student. I'm on a visa currently and I also Chair the International Special Interest Group of NSG and we have a couple of resources that we can share with you if you have specific questions. My name is Arpita. And feel free to email me.
And I think I saw this question twice now, but people had asked what made someone go into their specialty, especially since as genetic counselors are training, is all really the same. But then we can go down different paths. So if anyone wants to talk about that.

I can go first and speak. I was more interested in the prevention part of genetic testing and something that really stuck with me was when before I applied...
to grad school I was shadowing with a genetic counselor who worked in cancer and she said that you know, cancer genetics is one of the specialties in genetic counseling that actually can be preventative. Or lifesaving in terms of preventing cancer?
So when, so that really stuck with me and I think. I think in terms of that I like being able to work with patients to actually change outcomes in terms of cancer because I do see it as very important work I do like.
in terms of cancer genetics that.

It is, it is something I autonomous

so we talked about pediatric genetics

and in some parts of cardiac genetics

there's work with a Jeanette Assist

In general there's not really

direct work with a physician and less

which is a little bit different.

So essentially that was my perspective

on when I was in grad school and I was

experiencing different types of rotations.

Why ultimately decided to?

Pursue cancer.

Yeah, I would really use
03:17:32.184 --> 03:17:33.750 a lot of the rotations as
03:17:33.814 --> 03:17:35.744 your as a perspective students
03:17:35.744 --> 03:17:37.288 opportunity to really explore
03:17:37.288 --> 03:17:39.279 what each specialty looks like.
03:17:39.280 --> 03:17:42.080 What are aspects of the rotation that you
03:17:42.080 --> 03:17:44.746 really like that you would want to see in
03:17:44.746 --> 03:17:47.409 a full time position when you graduate?
03:17:47.410 --> 03:17:50.034 What are you know types of the rotations
03:17:50.034 --> 03:17:52.838 that you don’t really mesh as well with,
03:17:52.840 --> 03:17:55.262 so that when you’re applying to positions
03:17:55.262 --> 03:17:58.256 you can say you know what I really liked,
03:17:58.260 --> 03:17:59.584 that I had autonomy.
03:17:59.584 --> 03:18:01.995 Or I preferred to work closely with
03:18:01.995 --> 03:18:04.137 the geneticists and that can help
03:18:04.137 --> 03:18:06.039 narrow down what specialty might
03:18:06.039 --> 03:18:08.039

322
be a better suited for someone.

What I also would say is that if there is a specialty that you’re going into Graduate School, known that you really want to be a part of upon graduation to maybe choose your thesis or Capstone project in that specialty area, or if you have an opportunity to do an extra clinical rotation, choose it in that specialty.

Maybe choose some volunteer work. Any school that affords you to you know, work in that specialty.

And so when we’re hiring people, I really like to see that someone’s
03:18:39.406 --> 03:18:40.360 had cancer experience,
NOTE Confidence: 0.8658318
03:18:40.360 --> 03:18:41.950 not just through the rotations,
NOTE Confidence: 0.8658318
03:18:41.950 --> 03:18:42.865 but they’ve done.
NOTE Confidence: 0.8658318
03:18:42.865 --> 03:18:44.695 They chose to have their thesis
NOTE Confidence: 0.8658318
03:18:44.695 --> 03:18:46.408 in that specialty as well.
NOTE Confidence: 0.8658318
03:18:46.410 --> 03:18:48.138 So much like you’re all thinking
NOTE Confidence: 0.8658318
03:18:48.138 --> 03:18:50.049 about how to make my application
NOTE Confidence: 0.8658318
03:18:50.049 --> 03:18:52.125 the strongest to get into school,
NOTE Confidence: 0.8658318
03:18:52.130 --> 03:18:54.020 we’re also looking at how did
NOTE Confidence: 0.8658318
03:18:54.020 --> 03:18:55.949 you use school to get into,
NOTE Confidence: 0.8658318
03:18:55.950 --> 03:18:57.580 especially that you might want
NOTE Confidence: 0.8658318
03:18:57.580 --> 03:18:59.440 to be interested in landing an,
NOTE Confidence: 0.8658318
03:18:59.440 --> 03:19:00.078 you know,
NOTE Confidence: 0.8658318
03:19:00.078 --> 03:19:01.992 doing everything you can to then
NOTE Confidence: 0.8658318
03:19:01.992 --> 03:19:03.324 strengthen that application from
NOTE Confidence: 0.8658318
the day one of you starting school.

To the very end.

So if there was journal clubs

that you could choose an article,

choose it in the specialty that you

liked it in and put that on your

resume and you know things like that

are all opportunities and things that

we look for as an employer to see

that people are sort of recognizing

what things were going to work well.

Then they can speak to that

during the interview process.

I think I’d like to add

that it’s great for people to

be open to new experiences too.
I know plenty of genetic counselors that really were quite confident they knew what they wanted to do after they graduated. But then, perhaps there wasn’t a job available in their very restricted geographic area that gave them that opportunity, so they just took a chance and tried something that they actually thought they wouldn’t like very much, but they. Needed that paycheck and then lo and behold, they really enjoyed it and now they stayed in it even though they.
had an opportunity to switch out.

So I think that’s what’s great about being in training programs that you’ll have an opportunity to experience many things.

You’re also see that you know being a cancer genetic counselor at one setting could be very different than being a cancer genetic counselor at another setting.

Just says for me, prenatal counseling in one center.

Very different in one center, you might be imbedded in the genetics department and have 15 colleagues,
including geneticists and genetic counselors, and in another setting you might be the only genetic counselor working with OBGYN’s so that experience and what you share with your classmates will also help to teach you like what makes me comfortable at this stage in my career, because who knows what you might want five years in two years might want, I think there’s a lot of opportunity for people to kind of pivot as they go through
their profession as a genetic counselor. And try new and exciting things along the way and expand their skill group and their confidence. You know with every new experience. Yeah, I think that’s really nicely sad, and some of our panelists here have. You know, had various genetic counseling roles, not necessarily in the same specialties, so I think the flexibility is also another draw to the field. Having one degree doing many different things, but. Thinking about. Wrapping up this event.
and genetic counselors looking to the future, one of our participants asked. What we think the future of genetic counseling more will look like, which is a very broad question. So does anyone want to take a stab at? Any hunches they have or? And what they think will change or stay the same. Or I can talk a little bit. I’m Lamsam’s counterpart in the general genetics clinic.
03:22:17.070 --> 03:22:18.756 of groups that are kind of
NOTE Confidence: 0.8846473
NOTE Confidence: 0.8846473
03:22:20.347 --> 03:22:23.269 are going to fit into a more.
NOTE Confidence: 0.8846473
03:22:23.270 --> 03:22:24.518 Precision medicine or
NOTE Confidence: 0.8846473
NOTE Confidence: 0.8846473
03:22:25.772 --> 03:22:28.719 So I think that’s somewhere that we’re
NOTE Confidence: 0.8846473
NOTE Confidence: 0.8846473
03:22:31.588 --> 03:22:33.252 where we’re helping asymptomatic
NOTE Confidence: 0.8846473
03:22:33.252 --> 03:22:35.752 individuals decide what type of genetic
NOTE Confidence: 0.8846473
03:22:35.752 --> 03:22:38.242 testing would be helpful for them.
NOTE Confidence: 0.8846473
03:22:38.242 --> 03:22:40.742 And I’ve seen some questions about
NOTE Confidence: 0.8846473
03:22:40.742 --> 03:22:43.649 whether or not we address things like
NOTE Confidence: 0.8846473
03:22:43.650 --> 03:22:46.146 Nutrigenomics and I think there’s a
NOTE Confidence: 0.8846473
03:22:46.146 --> 03:22:48.645 lot of possibility for genetic testing
NOTE Confidence: 0.8846473
03:22:48.645 --> 03:22:51.585 to extend into those types of rules
NOTE Confidence: 0.8846473
03:22:51.585 --> 03:22:53.710 we traditionally haven’t really had.
A lot of exposure to that and many of us don’t necessarily have the expertise to go in depth for counseling on nutrition mix for example, or microbiome testing, but I think in the future as we add that into curriculum and more of us become exposed to it overtime and there might even be guidelines and counseling and types of results back or interpret them. I think that’s somewhere that we could even move into in
the future too.

Think along those lines,

there is a really good article

about looking at into 2030 like the future of genetic counseling and

I'll try post the link on the chat,

but it talks about how.

Genetic counselors are expecting people to have genomic information at their fingertips.

It’s all going to be digitalized and you know, patients might have their raw data,

or you know their genetic risks easily accessible,

and so genetic counseling might have to follow that as well.

Like, how do you make sure
genetic counseling is as easily accessible to patients?
So that’s a really cool article. I’ll try to post it in the chat now.
Things are, but I’d actually really be curious to to read that, and I’m sure everyone attending here today would also be interested. So anyone have any final thoughts that they’d like to share words of words of wisdom? I’m sorry we didn’t get to all of those questions, but again, do you feel free to reach out?
To any of us here on the panel, but good luck if you’re applying for this upcoming cycle. Good luck in the future if you plan to apply and anyone else is welcome to say last words before I end the event and I will send out that survey. A survey will have a couple of questions for you and your reward for helping us improve the event will be a link to the recorded. A recording of the event, so thank you for coming. Just wanted to echo Alex and just say it was a pleasure talking with everyone you know. And please don’t be a stranger


03:25:21.984 --> 03:25:25.193 Everyone here on the panel loves talking


03:25:28.885 --> 03:25:31.488 No, please don’t be a


03:25:33.640 --> 03:25:35.680 I mean, I think it’s because

03:25:35.680 --> 03:25:37.520 everyone we love this field,

03:25:37.520 --> 03:25:39.907 I love this field just because of

03:25:39.907 --> 03:25:42.108 how many different facets there are,

03:25:42.110 --> 03:25:45.287 and I just I just respond to a question.

03:25:45.290 --> 03:25:48.106 But obviously you know the field we need.

03:25:48.110 --> 03:25:50.574 We need more diversity in the field.

03:25:50.580 --> 03:25:52.350 There was a recent report,
the accident report that came out that was disappointing in terms of there's not enough inclusion and is not enough of positive response to diversity in the genetic counseling field. So really, we need genetic counselors of all different backgrounds, different educational backgrounds, different jobs, different races, different gender expressions. We need all those different aspects actually strengthen the field. So I'm really excited with where genetic counseling can go and where it will go. So definitely don’t be a
stranger with any questions, any concerns, and it was a pleasure.

Talking with him, talking to all of you.

Alright, thank you everyone. Possibly see you next year but

Possibly see you next year but stay tuned and have a good weekend.

Bye.