

## WEBVTT

00:00:04.754 --> 00:00:05.922 - There are at least  
00:00:05.922 --> 00:00:09.009 40 or 50 different types of congenital heart disease.  
00:00:09.009 --> 00:00:12.012 Some are very straightforward, some are very complex,  
00:00:12.220 --> 00:00:14.139 and they all affect the structure of the heart  
00:00:14.139 --> 00:00:16.474 and the physiology of the heart in different ways.  
00:00:16.933 --> 00:00:20.478 - It can involve malformed chambers, tight or synodic vessels,  
00:00:20.478 --> 00:00:24.441 or transposed arteries, and these defects alter the hemodynamics,  
00:00:24.441 --> 00:00:28.153 often causing poor blood to circulate to the body or forcing the heart  
00:00:28.778 --> 00:00:31.448 to pump at dangerously high pressures, which eventually lead  
00:00:31.448 --> 00:00:33.366 to heart muscle fatigue or failure.  
00:00:33.366 --> 00:00:37.620 - You know, baby needs to eat and grow and thrive,  
00:00:37.871 --> 00:00:41.750 and that requires a normal amount of blood flow out to the body  
00:00:41.750 --> 00:00:45.670 and that normal amount of oxygen in that blood, so that all of those  
00:00:46.046 --> 00:00:48.673 developing processes can take place.  
00:00:48.673 --> 00:00:51.217 So in very severe forms of congenital heart disease,  
00:00:51.217 --> 00:00:53.678 the heart is just not capable of doing that  
00:00:53.678 --> 00:00:56.890 and so we often will need to make modifications  
00:00:56.890 --> 00:00:59.851 to augment the heart's ability to do what it needs to do.  
00:01:04.939 --> 00:01:07.567 - Treating a child is more than just treating a heart.  
00:01:07.567 --> 00:01:11.905 It involves obviously close collaboration between numerous specialists  
00:01:11.905 --> 00:01:16.326 and caregivers to optimize what is the best plan  
00:01:16.326 --> 00:01:19.412 and the best treatment for any child in their family.

00:01:20.330 --> 00:01:23.333 - In order to make those diagnoses,

00:01:23.500 --> 00:01:26.211 we have to really understand the anatomy

00:01:26.211 --> 00:01:29.172 with the way the heart works, what we call the physiology.

00:01:29.172 --> 00:01:33.218 - The type of imaging and advanced diagnostic techniques we have here

00:01:33.676 --> 00:01:36.638 allow us to understand precisely what we need to do.

00:01:36.846 --> 00:01:41.351 - We're lucky to have experts and specifically congenital heart imaging,

00:01:41.351 --> 00:01:46.064 to process them in ways that allow us to understand exactly what's going on.

00:01:46.356 --> 00:01:49.150 And these days, to even print models of the heart.

00:01:49.150 --> 00:01:52.529 So ahead of any intervention, we can look at the heart

00:01:53.113 --> 00:01:56.324 as a printed model and understand things in three dimensions.

00:01:57.200 --> 00:01:59.410 - Care of the congenital heart patient is a team sport.

00:01:59.410 --> 00:02:02.831 Although I do the operations along with the surgical team,

00:02:03.206 --> 00:02:06.960 I couldn't do that without an anesthesiologist and nursing team

00:02:06.960 --> 00:02:09.337 a cardiology team to do the diagnosis,

00:02:09.462 --> 00:02:12.132 a critical care team to take care of that patient afterwards.

00:02:13.091 --> 00:02:14.634 Specifically in the cath lab,

00:02:14.634 --> 00:02:18.221 more and more things are being done in a less invasive way,

00:02:18.555 --> 00:02:19.931 which is good for everybody.

00:02:19.931 --> 00:02:24.853 - We're now able to allow babies to avoid an operation,

00:02:25.395 --> 00:02:28.815 even in the very first few days and months of life,

00:02:28.815 --> 00:02:33.194 either not needing surgery at all because we're able to completely

00:02:33.194 --> 00:02:36.156 take care of the problem with a catheter based approach,

00:02:36.406 --> 00:02:39.409 or at least to delay the need for surgery.

00:02:39.909 --> 00:02:43.288 - Sometimes we can do a single operation or a single procedure

00:02:43.288 --> 00:02:45.498 and take care of something once,

00:02:45.498 --> 00:02:49.002 and they don't have any other interventions the rest of their lives.

00:02:49.002 --> 00:02:51.838 Other times it requires a series of operations

00:02:51.838 --> 00:02:54.799 and continued management through their entire life.

00:02:54.799 --> 00:02:58.636 - We offer the full spectrum of care, from cutting edge medical management

00:02:58.636 --> 00:03:02.307 to ventricular assist devices that act as a bridge to heart transplant.

00:03:02.473 --> 00:03:05.351 - We are the only program in the state of Connecticut right now

00:03:05.351 --> 00:03:07.854 that has an active children's heart transplant program.

00:03:07.854 --> 00:03:11.733 - We have a dedicated pediatric transplant infrastructure that manages everything from

00:03:11.733 --> 00:03:13.651 high acuity surgical periods

00:03:13.651 --> 00:03:17.363 to the lifelong immunosuppression management that's required after heart transplant.

00:03:17.864 --> 00:03:23.453 - One of the advantages to our center is that we are well integrated

00:03:23.745 --> 00:03:27.248 with our experts in adult congenital heart disease,

00:03:27.248 --> 00:03:30.585 who really we are able to hand off

00:03:30.585 --> 00:03:33.796 our young children to as they get older and reach adulthood.

00:03:33.880 --> 00:03:36.966 - In fact, now there are more adults with congenital heart disease

00:03:36.966 --> 00:03:40.637 because they've survived than children with congenital heart disease.

00:03:41.346 --> 00:03:44.224 And this gap will continue to increase over time.

00:03:48.937 --> 00:03:52.190 - Yale is a well known research institution,

00:03:52.565 --> 00:03:59.072 and we bring to bear that experience in the space of congenital heart disease.

00:03:59.822 --> 00:04:03.618 - This research includes new type devices that might be put in in the cath lab.

00:04:04.035 --> 00:04:06.996 They include new type of regenerative valve technology

00:04:06.996 --> 00:04:09.999 that we're developing to use in the operating room.

00:04:11.125 --> 00:04:14.295 It includes researching the genetics of congenital heart disease,

00:04:14.545 --> 00:04:17.924 which allow us to understand why congenital heart disease forms

00:04:18.383 --> 00:04:19.926 and understand the different

00:04:19.926 --> 00:04:23.596 classes of congenital heart disease and the different risk categories.

00:04:23.721 --> 00:04:27.308 - What can we anticipate for how their heart is going to function in the long term?

00:04:27.308 --> 00:04:29.352 How will it tolerate an operation?

00:04:29.352 --> 00:04:31.854 Is there an operation that might be better for this patient

00:04:31.854 --> 00:04:34.857 because of a particular problem with their genetics?

00:04:35.275 --> 00:04:37.860 - And we're also researching the outcomes based data

00:04:37.860 --> 00:04:41.197 to improve the long term quality of life for transplant recipients.

00:04:41.197 --> 00:04:43.574 So we're moving beyond simple survival

00:04:43.574 --> 00:04:47.287 to ensuring these children can lead active lives and full lives.

00:04:48.496 --> 00:04:49.664 - These are all areas

00:04:49.664 --> 00:04:53.710 that tap into the depth and breadth of expertise,

00:04:53.710 --> 00:04:58.589 both in cardiology but also outside of cardiology.

00:04:59.173 --> 00:05:01.384 Because of the institution that we're in.