DR. CHET RIHAL: Hi. This is Chet Rihal. I have a very special guest with me today. Dr. Clay Cowl is director of the section of aerospace medicine here at Mayo Clinic. Clay, welcome.

DR. CLAY COWL: Thanks. Hi, Chet.

DR. CHET RIHAL: Great to have you here today. Let me ask you-- how did you get into this line of work? And what are the qualifications to be a specialist in aerospace medicine?

DR. CLAY COWL: Well, it started back, oh, probably about 15 years ago. I'm a pilot myself. I'm trained as a pulmonologist, and so I've done a lot of research in altitude physiology. And before I came to Mayo Clinic, I did flight physicals. And ultimately, the qualifications involve being designated by the regional flight surgeon in your particular area of the FAA and then going for a training course and passing the examination.

DR. CHET RIHAL: So there's an actual exam that you have to--

DR. CLAY COWL: Yeah, there is. DR. CHET RIHAL: Yes.

DR. CHET RIHAL: Oh, yeah. So pilots are frequently referred to cardiologists for one problem or another. Can you tell us what you think we in the cardiology community need to know as we see and evaluate these patients?

DR. CLAY COWL: Sure. I think one of the misconceptions in the cardiology community is that there is a feeling of advocacy, like they need to say, gee, I think Joe can fly or Frieda can fly. And ultimately, the FAA really doesn't care if the cardiologist thinks they can fly or not. But what they're really looking at is-- what is the diagnosis? What's the prognosis and the opinion of the cardiologist? They don't expect them to be an aerospace physiologist or know much about flying at all. That's within the purview of the forensic examiner, i.e. the flight surgeon that's seeing the pilot. And then ultimately, the FAA makes the final disposition on that.

So I think, again, the cardiologist needs to focus on doing what they do best. And that is just make the diagnosis and get that correct and let them know kind of what the prognosis is associated with that.

DR. CHET RIHAL: Now were often asked by these patients that, if there's any problem with these tests, they're going to lose their license or lose their career. So it does put some pressure on the cardiologist to act as her advocate, as you've said. So how do we deal with that?

DR. CLAY COWL: Sure. It sure is. And there's a lot of misconceptions often unnecessarily placed by the pilot. In fact, a lot of the information that's garnered by pilots is, as we say, hangar talk, where it's not always vetted at the appropriate places. So ultimately, it's surprising, but a lot of common conditions that the cardiologists face are acceptable for what are called special issuance waivers. Conditions such as atrial fibrillation, even certain forms of cardiomyopathies, myocardial infarctions, and the like can all be granted special waivers given appropriate testing guided by a flight surgeon.

DR. CHET RIHAL: Yeah, I think many of us really don't know that. What are the specific things that cardiologists ought to do when seeing a pilot? You just said we just do our usual routine, come up with a diagnosis and the best therapeutic recommendations. Is there more pressure on us to do invasive treatments, like to do balloons and stents to try to treat every little bit of ischemia, whereas in another patient, we may just treat it medically?

DR. CLAY COWL: Sure. Oftentimes, we discuss this with the pilot in that there are certain parts that are forensic in nature and certain parts that are clinical. And so, for instance, pilots requiring a class 1 medical, i.e. like a pilot that flies in the left seat in a commercial airliner, has much more scrutiny than say a pilot flying on the weekend, which would be what is called a class 3 medical.

So in that line, the class 1 pilot, for instance, that has a stent placed actually needs to have another angiogram done in six months. And obviously, clinically we would never do that from a cardiology perspective. But from a forensic perspective, the FAA needs to know that those stents are not clogged, and there are no restenosis in those particular stents. And so there sometimes are requirements for it that you wouldn't do clinically. But I think they can certainly ask the pilot to ask their flight surgeon and to let the pilot know that they don't intuitively know all of the FAA regulations.

DR. CHET RIHAL: What about pacemakers and defibrillators?

DR. CLAY COWL: Pacemakers are allowed. And, in fact, of course, they do need a good pacer interrogation. Defibrillators are not allowed. Now interestingly, in another area, as in commercial driving, defibrillators are allowed in those groups. So it becomes particularly confusing, I know, to the cardiologists out there. But again, it's being familiar, on the pilot's side any way, that they do not allow certification for defibrillators.

DR. CHET RIHAL: And what about healthy, asymptomatic pilots? Must they undergo comprehensive stress testing or echoes or other cardiac testing?

DR. CLAY COWL: Sure. For the most part, it's never an issue. I often get a question about hypertension. Is that a problem? Hypertension should be treated, and none of the newer or most common medications prescribed for hypertension are disqualifying. So I don't think pilots need to worry in that regard.

One of the things that we always get into is the coronary calcification scan. If there is coronary calcium identified in a younger pilot, the FAA does expect that there is at least an electrocardiogram or some basic evaluation done to make sure that they don't have significant cardiovascular disease.

DR. CHET RIHAL: But not necessarily an angiogram.

DR. CLAY COWL: Correct. And many times, just a functional study is plenty adequate.

DR. CHET RIHAL: Now if a cardiologist is interested in learning more about this, potentially even getting certification so they can act as a resource in their local area, how would they go about that?

DR. CLAY COWL: Sure. Be it, I think the easiest thing is online at FAA.gov. There's a phenomenal resource there by the FAA itself, which includes the actual examiner's guidebook, which has all of the sort of certifying or non-certifying conditions. Or if they get familiar with who their local flight surgeons are in the area, there's a list of that as well.

DR. CHET RIHAL: My guest today has been Dr. Clay Cowl, section head of the aerospace section here at the Mayo Clinic. Clay, this has been very, very informative. I thank you for your time, and I hope all of you out there found it as informative as I did. Thank you.

DR. CLAY COWL: Thanks a lot, Chet.