SAM GOLDHABER: Hello. My name is Sam Goldhaber. I am interim chief of the Division of Cardiovascular Medicine at Brigham and Women's Hospital. And I'm professor of medicine at Harvard Medical School.

The issue of new pharmaceutical approaches to cardiovascular risk reduction is really in our top tier of interests, concern, and mission. In my own practice, my outpatient practice is about half general cardiology and about half related to thrombosis, such as pulmonary embolism and deep vein thrombosis.

But the two areas really come together because patients with elevated lipid counts, total cholesterol, and LDL cholesterol have a high inflammatory state. And this inflammatory state can manifest itself as myocardial infarction, stroke, pulmonary embolism, or DVT. And we don't know yet what makes some patients go down one pathway versus the other.

But we do know that if you have an MI or a stroke that during your lifetime you are about twice as likely to suffer a pulmonary embolism or DVT. And conversely, if you start off with a pulmonary embolism or DVT, we know that during your lifetime you're twice as likely as average to suffer myocardial infarction or a stroke.

Furthermore, there have been convincing studies both in the pulmonary embolism and DVT literature, and of course, in the acute coronary syndrome, coronary artery disease literature would show that if you can reduce inflammation and that if you can reduce in particular the LDL cholesterol, your chance of any of these major adverse cardiovascular events decreases.

In my own practice, I take care of patients with MI, stroke, pulmonary embolism, and DVT. And regardless of what their particular cardiovascular illness is, I'm always checking their lipid panel. I explain to these patients who come from a very wide referral base over a long distance and from many different types of health care providers that we as cardiologists, as cardiovascular medicine specialists, are in general much more aggressive about lowering the cholesterol level, particularly the LDL cholesterol level, than the general community of doctors.

And furthermore, I explain to them that most of us have not followed the standard guidelines. We like to think that we're one or two steps ahead of the guidelines, particularly at an institution such as Brigham and Women's Hospital where our translational researches and our clinical trials are actually conducting the trials that the substrate for future guideline writing.

So for my patients who have had an event, I'm always looking to see how low we can get the LDL cholesterol. And I want to tell them always that the lower the better. I do measure the cholesterol number. It's a goal.

But I say that there is no normal range, which is different than almost any other type of laboratory test we have. We're used to having a normal range, a lower limit and an upper limit. I think what you'll see on most laboratory forms for LDL cholesterol, you could have an LDL cholesterol limit up to 120 milligrams per deciliter. And there are many laboratory forms that would not be starred or printed out in red ink that would-- if you were 119 milligrams per deciliter, that would be considered OK on the lab form.

And the patients now for the most part are looking at their lab test results. And it might not jump out to them. But it's our responsibility as cardiovascular medicine specialists to introduce and to teach them the concept that the lower the better.

How far we press the lowering of the LDL cholesterol really depends on what the patient's overall risk is, not just the personal risk. But family history is very important. So if you have a healthy individual who has had, for example, a DVT or a pulmonary embolism but there's a strong family history of stroke or myocardial infarction, the LDL cholesterol becomes very important.

And if these individuals are leading a heart healthy lifestyle with respect to exercise and with respect to a heart healthy diet and heart healthy nutrition, then the next step is a discussion of instituting statins. And this is an important discussion to have, particularly since on the internet there is a lot of false information about the family of statin therapy. And patients have to be coached to glean their data from reliable sources. So if I am going to try to follow this concept of the lower the better, some patients at maximum doses of atorvastatin 80 milligrams daily, or rosuvastatin 40 milligrams daily, plus ezetimbe are just not going to get to where we want to be.

And those are patients who I think are great candidates for the PCSK9 inhibitors. These drugs, which can lower reliably the LDL cholesterol to the 30s, are added on top of the statins. They don't have the anti-inflammatory effect that the statins do. But in combination, they can drive the LDL cholesterol lower.

And we know from large-scale studies that have pooled data, particularly some recent cmr_9690_chicago_goldhaber-1-1080p_mp4 studies that if you've had, for example, a pulmonary embolism or DVT and then you suffer acute myocardial infarction, your mortality rate's going to be higher than average. And conversely, if you have particularly multi-vascular system coronary disease and then you suffer a pulmonary embolism, your mortality from pulmonary embolism is going to be much higher than expected.