SPEAKER: LDL cholesterol is an excellent biomarker, because it recapitulates a number of things. However, it's not perfect at everything. A better biomarker encompassing all the atherogenic lipoproteins, which are the apoB-containing proteins, is apoB.

The reason why apoB is not in the guidelines as a primary target and LDL cholesterol is there is because of the trials. Many trials have been carried out with LDL cholesterol as the end point biochemical and biomarker. Therefore, it's difficult to recommend apoB. But biology and genetics strongly tell us apoB will be better.

We have apoB as a secondary goal into the guidelines for people with hypertriglyceridemia and diabetes. This is because very often, people with diabetes have an increased pool of apoB-containing lipoprotein in the LDL remnant range, which is not the case for pure hypercholesterolemia. And the goal is slightly different from that of LDL, but that is a biology issue.

However, apoB, in my view, in the future will be probably-- not in a short run but in future trials-- would be the one to address. Notably, if you look at the benefit in different subgroups from the ODYSSEY, they have these 100 milligrams, 80 to 100, and below 80 milligrams per deciliter split into groups.

If you look at the paper, it appears that the benefit will be waving around these three groups. In other words, the intermediate group benefits less than the other two, if you look at subgroups. However, if you look at the supplementary data and you look at the apoB, it's a straight line-- boom, boom, boom.

Why is that? It needs to be explained, but it might well be that it relates to the type of lipoproteins that are accumulating in those subjects. And the ones in the middle area are the ones with moderate hypertriglyceridemia.

We will have to analyze that. However, I'm still convinced that apoB-containing lipoproteins are slightly better than LDL cholesterol and they target better some populations for the risk.