

# NCATS Day 2019

## Case Study A: Individual Data

### Abstract:

Rita, a mother of two girls, is in her late 60s. One feature on her health record that stands out is her unusually high levels of HDL cholesterol, the good kind. Rita's doctor referred her to researchers at a local university—also a major research institution—who had designed a large clinical study to examine the association between a gene known as *SCARB1* and levels of HDL cholesterol. Their study was based on earlier work showing that mice with mutations in *SCARB1* had both high HDL cholesterol levels and a high incidence of cardiovascular disease, suggesting that high HDL levels may not always be good.

Rita consented to participate in the study, which required giving a blood sample. The blood sample was used to sequence Rita's DNA and look for mutations in the human *SCARB1* gene. Rita also was among a group of participants invited back for an ultrasound of their carotid arteries. These data were not provided back to Rita, nor to any other research study participant.

Approximately five years after Rita originally consented to the study, the researchers published their results in a prominent research journal. Although Rita was not identified by name in the [scientific article](#), her health and demographic data were singled out because she was the only individual with a mutation in both copies (inheriting one from each parent) of her *SCARB1* gene. Rita's carotid artery scans showed detectable plaque and thickening of the arteries. Her data also figured prominently in resulting news articles, which described the "[paradoxical case](#)" of a "[67-year-old woman with sky high HDL levels,](#)" and, more colorfully, "[a 67-year-old Jewish grandmother](#)" who has "[off-the-charts high levels of HDL cholesterol—the good kind—yet her arteries are still as thick and gummed up as an old rusty pipe.](#)"

Following a chance encounter with the lead researcher of this study, Rita was informed she was the study participant highlighted in the research paper. The researcher reassured Rita that she was in good health and that although her genetic results were unexpected and unusual, her arteries were not in dire shape. He felt neither the genetic data nor the ultrasound data indicated she was at any elevated risk of having a heart attack. But, as a precaution, he prescribed her a cholesterol-lowering drug. Rita subsequently contacted one of the reporters who wrote about the findings and published a follow-up article identifying Rita as the participant and focusing on her perspective.

### References:

Research article: [Science](#)

News articles: [Philadelphia Inquirer](#) [Science](#) [STAT](#)

### Key Points:

1. A woman in good health is referred to a large clinical study because of unusually high HDL cholesterol levels.
2. Researchers discover she is the only participant with mutations in both copies of her *SCARB1* gene, and subsequent ultrasound reveals plaque and arterial thickening.
3. These data are not reported to the participant.
4. The participant's genetic and demographic data are singled out in published material, making it possible for the participant to identify her own information.
5. The clinical meaning of the study's results is unclear; the plaque and arterial thickening is not unusual for an individual of her age.

### Framing Questions:

Be prepared to discuss with each case: The discussion facilitator may ask you for more details/depth on these questions.

## Case Study B: Community Data

### Abstract:

Over the last five decades, an American Indian tribe saw an increase in the incidence of diabetes among its members. The tribe had a trusting relationship with an anthropologist at the nearby university and asked him if he knew of a doctor who could “[help prevent \[diabetes\] from spreading.](#)” The anthropologist enlisted a geneticist colleague who was interested in determining if the incidence of diabetes in this tribe was associated with a genetic variation seen in another tribe with high rates of diabetes.

The two colleagues received funding from an organization supporting research on schizophrenia and depression to conduct research to answer this question. They also used part of the grant money to teach nutrition classes on the reservation.

The geneticist and her graduate students worked out of the tribe’s health clinic to recruit about 100 study participants—nearly 15 percent of the tribe. The graduate students explained the project, and the potential participants could ask questions before they gave consent. The consent form said the research aimed to “study the causes of behavioral/medical disorders.” After consenting, each participant gave blood. To the tribe, blood is sacred. The research team found no genetic link to diabetes. They also found little to pursue after looking at genes thought to be involved in schizophrenia, metabolic disorders and alcoholism. Other researchers used the blood samples, which were stored in a university freezer and labeled with the geneticist’s name, to conduct studies and publish papers reporting on inbreeding, alcoholism and the origin and migration of the tribe from Asia. They did not seek additional consent from the participants or the tribe.

The members of the tribe who gave blood samples for the original study were not fully informed about the extent of the research. When they found out, they were upset that their samples had been used for research that could potentially damage the tribe and that bore no resemblance to a diabetes study. The tribe filed a formal complaint against the university and, after seven years of litigation, received a [financial settlement and additional assistance as well as the return of the blood samples.](#) The tribe—as well as neighboring ones—refuses to work with the university.

### References:

[Genetic Research among the Havasupai: A Cautionary Tale](#)  
[Indian Tribe Wins Fight to Limit Research of Its DNA](#)

### Key Points:

- An American Indian tribe was concerned about the number of individuals who had developed diabetes in their community.
- The tribe asked for help from an anthropologist who had a long-standing relationship with the tribe.
- The anthropologist reached out to a geneticist, who collected blood samples from the tribe to determine if the incidence of diabetes was associated with a genetic variation seen in another tribe with a high rate of diabetes.
- No association was found; however, other researchers at this same university used the samples to look at migration patterns, inbreeding and such conditions as schizophrenia.
- The consent form for the initial research study was very broad.
- The tribe sued the university because of the lack of informed consent and, after seven years of litigation, won a settlement.

### Framing Questions:

Be prepared to discuss with each case: The discussion facilitator may ask you for more details/depth on these questions.

- How was the participant data used and shared?
- What was the focus or purpose of the research?
- Who had control of the data?
- Were participants well informed?
- What important steps should have been considered?
- What other issues come to mind from these case studies?