

Comparing the Predicted Benefits and Harms of Using Adult versus Child Guidelines for Lipid Testing and Treatment in 17- to 21-Year-Olds

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What was the research about?

Some people have high levels of lipids (or fats) in their blood. High lipid levels increase the risk of heart disease and early death. Most of the time, high lipid levels affect older adults. But high lipid levels also affect teens and young adults who are overweight or have a family history of high cholesterol.

Early testing and treatment for high lipid levels may help prevent heart problems. Doctors use guidelines based on research to decide when to test for high lipid levels and how to treat them. Two guidelines for lipid testing and treatment apply to teens and young adults (17- to 21-year-olds). But these guidelines offer different advice. Adult guidelines recommend treatment for patients with high lipid levels. Child guidelines recommend treatment for patients with slightly high lipid levels if heart disease runs in their family. Doctors don't know which guideline is best for teens and young adults.

This study compared the effects of using adult or child guidelines. The research team created a computer program using data from 17- to 21-year-olds who took a national health survey. The computer program predicted how each guideline would affect the health of teens and young adults in the United States.

What were the results?

- **Treatment recommendations.** The computer program predicted that more teens and young adults would be treated for high lipid levels using the child guidelines versus adult guidelines. Six times as many teens and young adults would receive lipid-lowering medicine using the child guidelines. Also, the program predicted that about 2 million teens and young adults would be urged to improve their diet and exercise under either guideline.
- **Health benefits in the first year.** The computer program predicted that using either guideline would lower body mass index in teens and young adults by the same amount. Body mass index is a measure of excess weight that takes height into account. For teens and young adults with high lipid levels, either guideline would lower lipid levels by the same amount. For those with slightly high lipid levels, using the child guidelines would lower lipid levels three times as much as the adult guidelines would.
- **Long-term health benefits.** The computer program predicted that teens and young adults would have fewer heart problems over the next 30 years if they followed either guideline. Those with high lipid levels would live about two years longer if they followed either guideline. Those with

slightly high lipid levels would live about two months longer using the child guidelines than the adult guidelines.

- **Quality of life.** Teens and young adults told researchers that having their lipid levels tested and receiving treatment made them feel like their health was worse. Because more teens and young adults would get treated using the child guidelines, those guidelines could reduce quality of life more than the adult guidelines would.

What did the research team do?

The research team used health data from 6,338 people aged 17 to 21 years in the computer program. The computer program predicted the effects of each guideline on treatment decisions in teens and young adults. Treatment included taking medicine, following a healthy diet, and exercising. The computer program used data from previous studies to predict how each treatment would affect lipid levels and body mass index. It predicted the number of heart problems teens and young adults would have over 30 years and how long they would live. The team also asked teens and young adults how they would rate

their health if they knew their lipid levels and received treatment. The computer program used these ratings to predict quality of life.

What were the limits of the study?

The national survey had missing health data for some groups of people. Missing data might affect the computer program's predictions. The research team didn't look at the costs or side effects of medicines. Those things may change the quality-of-life predictions.

Future research could look at how taking lipid-lowering medicines affects teens and young adults over time. Researchers could also study how testing lipid levels affects quality of life.

How can people use the results?

Doctors can talk with teens and young adults about which guideline might be best to follow. Doctors can also talk to teens and young adults about how following the guidelines might affect their treatment and future health.

To learn more about this project, visit pcori.org/Leslie036.