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## The World Needs New Antibiotics



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The problem of antibiotic resistance continues to be a threat to healthcare and yet, investment in the development of new antibiotics remains minimal. More people die from antibiotic-resistant bacteria than from traffic accidents in Europe. Approximately two million people die of tuberculosis every year.

The Norwegian government is currently working on a strategy to deal with antibiotic resistant bacteria but researchers from the Norwegian University of Science and Technology believe that the government's focus is too narrow. They feel that the only way efforts to develop new antibiotics will speed up is when cancer can no longer be treated with existing medicines.

Antibiotic resistance is a ticking time bomb. If this continues, a time will come when antibiotics will no longer kill bacteria, making people vulnerable to simple infections. That is why we need new antibiotics. But despite the urgency, both the pharmaceutical companies and governments remain passive.

The fact of the matter is that nobody wants to foot the bill. Pharmaceutical companies don't make much money from antibiotics so they are not interested in investing in this segment.

According to Magnus Steigedal, Director of the Norwegian University of Science and Technology's (NTNU) Strategic Research Area on Health and the head of the Norwegian section of a large EU project on the development of new antibiotics, "The biggest challenge is to make developing new antibiotics commercially viable. It may take 20 costly years to develop new medicine. Pharmaceutical companies aren't generating much income when patients stop taking their medicine after a few days or weeks."

For pharmaceutical companies, it is more profitable to develop medicine for chronic diseases such as hypertension or diabetes. The logic for this is simple. The longer the patient takes the medicine, the more money the company can make. Antibiotics are usually taken for a few days and so there is not much to earn. If the profits from antibiotics were sufficiently large, then pharmaceutical companies would become more interested.

"Only when cancer can no longer be treated, will the development of new antibiotics speed up. It sounds cynical, but that's the way it is," says Steigedal, who works at CEMIR, the Centre for Molecular Inflammation Research, which is a Norwegian Centre of Excellence at NTNU.

Prof. Trude Helen Flo, CEMIR's Co-director points out that the goal for new antibiotics is to weaken bacteria rather than kill them completely. Even if antibiotics do not kill the bacteria entirely, they can strengthen a person's immune system and weaken the bacteria enough for the immune system to clean up the rest. That is the new project they plan to work on where they will try new combinations of antibiotics. There may be a

chance that an antibiotic that has lost its effect will work if it is combined with others. That is what they plan to investigate because to date, scientists still lack an understanding of the interaction between bacteria and humans.

Steigedel however believes that the government and pharmaceutical companies need to play a more active role. There has been no new European research money being invested to find new antibiotics. He hopes that the Norwegian politicians will take this global reality into account and will develop a more effective strategy.

Source: Norwegian University of Science and Technology

Image Credit: Norwegian University of Science and Technology (Magnus Steigedal & Trude Helen Flo)

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