

ANTIBIOTIC RESISTANCE

GROUP: OXYCILIN
SCHOOL: Elorrio BHI
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1. INTRODUCTION

In recent months, due to the Covid19 pandemic, we have realised that we use medicines (many kinds of pills or antibiotics) in our daily lives very often.

All of this has led us to investigate the use of pharmaceuticals and we decided to start an investigation to see if they can really affect our health in the long run.

First of all, we carried out a survey among students, teachers and parents at the Elorrio BHI secondary school. Afterwards, we analysed the results of these surveys and drew our own conclusions.

At the end of the research we proceeded to gather information about antibiotics and the problems they can cause in the future in order to advise our acquaintances on its correct use.

2. HYPOTHESIS

The questions we want to answer conducting this research are the following:

- Do people really know what antibiotics are and how they act?
- Why is antibiotic resistance increasing?

3. MAIN OBJECTIVES

Faced with this huge problem, we wanted to raise awareness among the population that in a few years' time the use of antibiotics will affect our health. They will not be effective because bacteria will mutate and are mutating, becoming immune to antibiotics.

So, with this work we want to promote the correct use of antibiotics and the social consideration of the problems related to them.

4. MATERIALS AND METHODS

- Questionnaires
- Cameras
- Internet resources:
ICT rooms,
computers,
chromebooks

Antibiotikoak hartzen bazabiltza eta hobeto sentitzen bazara, medikuak bidalitako kopurua hartzeari uzten diozu?/ Si tomas antibióticos y te sientes mejor, ¿dejas de tomar la cantidad aconsejada por el médico? *

Bai/ Sí

Ez/ No

Ez dut antibiotikorik hartzen/ No tomo antibióticos

Antibiotikoak hartzerakoan gorputzean nola eragiten duten badakizu?/ ¿Sabes cómo influyen los antibióticos en el cuerpo? *

Bai / Sí

Ez / No

Baduzu antibiotikoekin zerikusia duen arazoren baten berri?/ ¿Tienes conocimiento de algún problema relacionado con los antibióticos? *

Erantzun luzearen testua

Image 1: Questionnaire

ORGANISATION OF THE WORK

1

DECEMBER

In December we conducted several surveys of students and adults to obtain information about this problem and analyzed the results of these

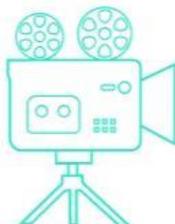
2

JANUARY AND FEBRUARY

 In January and February we were researching antibiotic resistance and gathering information about this.

3

MARCH

 During the month of March we were working on the scripts of the final report and the video as well.

4

APRIL

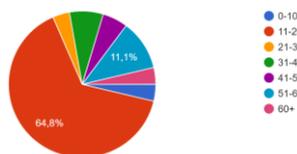
 And finally, in April, after all the work we have done to bring this project forward, we handed it over to Zientzia Azoka.

5. RESULTS

Here below, we will detail the results we have obtained from the surveys carried out. First, we will mention the results obtained among students and teachers and then the results from the questionnaires carried out among adults.

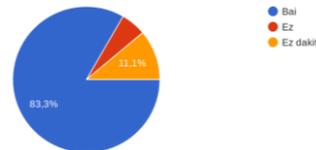
STUDENTS AND TEACHERS

Age



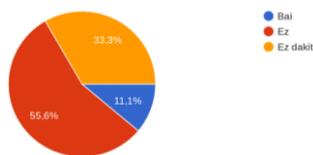
Graphic 1

Antibiotics taken



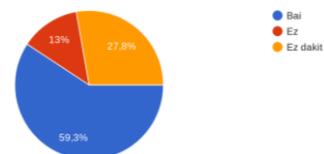
Graphic 2

Can AB kill viruses?



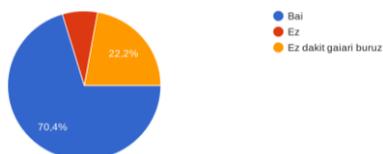
Graphic 3

Can AB kill bacteria?



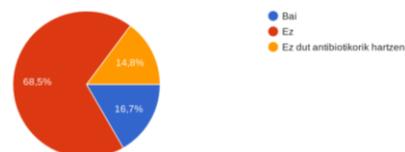
Graphic 4

AB taken in an inadequate way



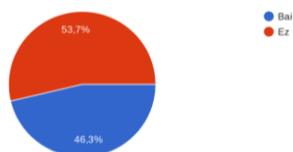
Graphic 5

Interruption of the treatment



Graphic 6

Function of AB



Graphic 7

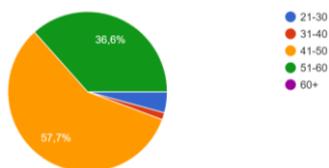
In the case of students and teachers, 54 people answered. The 84,8% of the answers were from young people between 11 and 20 years.

The 83.3% have taken antibiotics at some time, but obviously, many of them do not know about it, as in some of the answers, a large part of them were that they did not know about the subject. For example, more than the 53,7% of people do not know how antibiotics work in our body.

Nevertheless, the 59,3% know that they are used to fight the bacteria and not to treat viruses. The 70,4% think that people use antibiotics in an inappropriate way. Students and teachers know that they shouldn't stop taking the amount of antibiotics that the doctor told them even when they felt better, as only the 16,7% would stop.

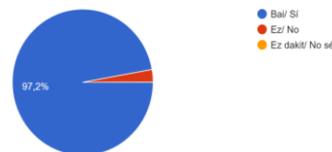
ADULTS

Age



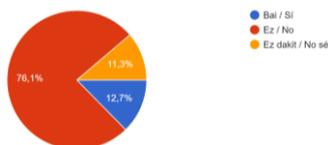
Graphic 1

Antibiotics taken



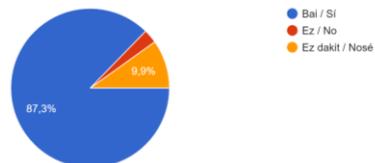
Graphic 2

Can AB kill viruses



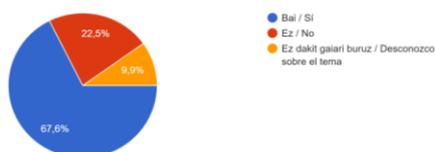
Graphic 3

Can AB kill bacteria



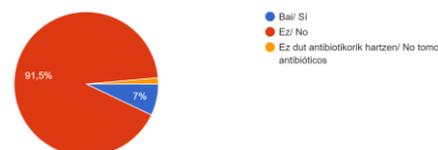
Graphic 4

AB taken in an inadequate way



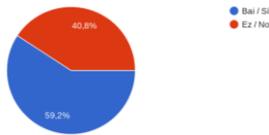
Graphic 5

Interruption of the treatment



Graphic 6

Function of AB

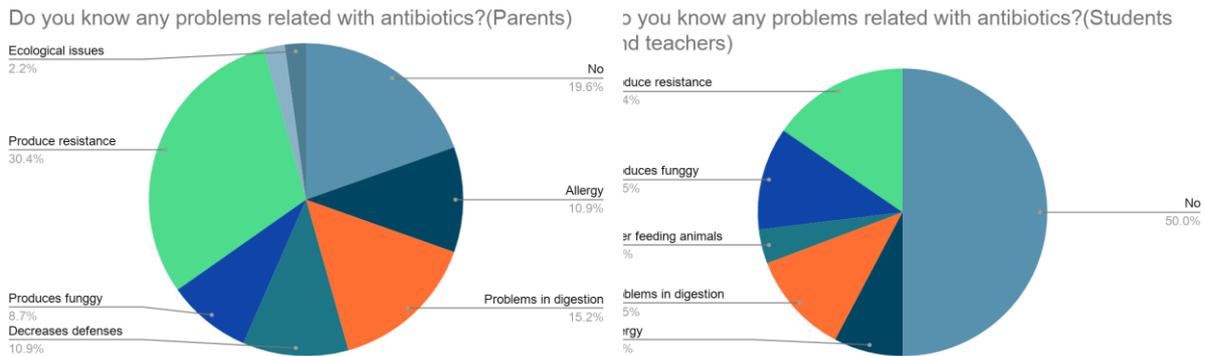


Graphic 7

We have received 71 answers from adults. Most of them, the 57,7%, are between 41 and 50 years old.

Barely the 2,8% haven't taken antibiotics, and the rest yes; however, only the 59,2% know how they affect our body. The 87,3% know that antibiotics are used to kill bacterias, not viruses, but still there are people that don't know about the topic, the 9,9%.

More than the half, exactly the 67,6% think that people use antibiotics in an inappropriate way; for instance, 7% of the adults would stop taking antibiotics if they felt better even if the doctor told them to take a bigger amount.



There was a question about if they know any antibiotic-related problem.

The 50% of the students and teachers and the 19,6% of the adults don't know about any problem.

However, the 30,4% in adults and the 15,4% among students know about the resistance that bacteria have developed against antibiotics. There were other answers for example: *it produces fungi, allergy, problems with digestion, decreases defenses...*

In general, adults know more about antibiotics than teenagers.

We thought that adults are better informed as doctors prescribe medicines to the adults and explain the use of them. Even so, there are adults who do not know the function of antibiotics and therefore take them without knowing what they are doing.

It is clear that people are uninformed about antibiotics in general, and that few know about the global problem of antibiotic resistance. That's a really big problem as antibiotic resistance is rising to dangerously high levels in all parts of the world.

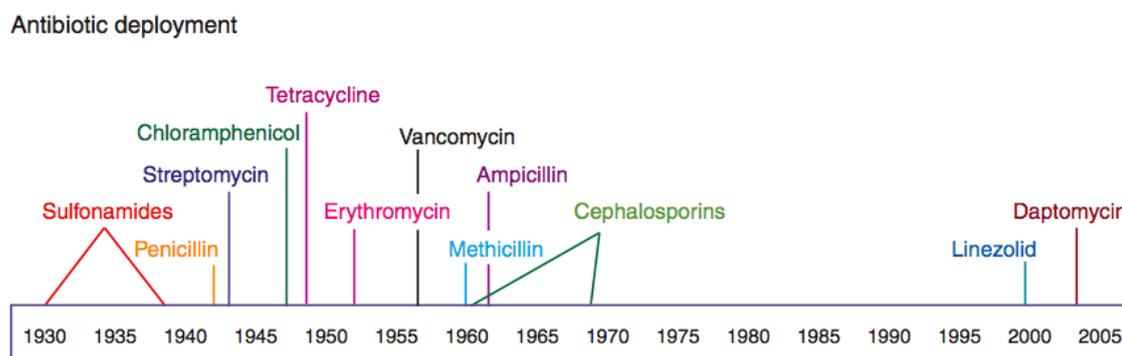
So if people don't know what is happening, they don't take precautions, consequently, the situation might get worse.

6. DISCUSSION

An antibiotic is a substance which is produced by a microorganism that does not allow the growth of other organisms if it is consumed in low concentration. It is used to treat bacterial infections but not viruses, therefore, it cannot treat viral infections; it acts on unique structures of bacteria, so it does not harm human cells.

It can be produced in microorganism (bacitracin), by synthesis (chloramphenicol) and by semisynthesis, which means that a part of it is produced by a microorganism and the other part by synthesis, (penicillins).

There are more than 14 different types of antibiotics:



Each antibiotic can just fight against the bacteria which is from the same type.

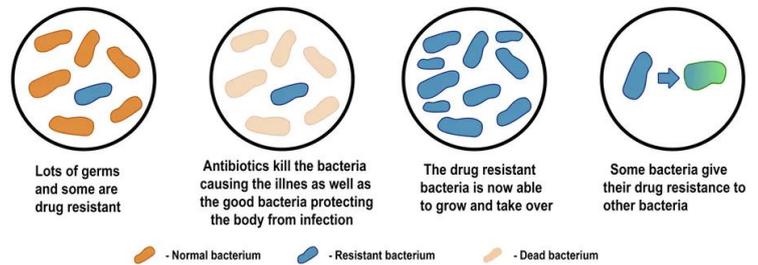
If we used it incorrectly, a problem of resistance would appear: bacteria would mutate, as a result, its genetic code would be changed and antibiotics would not work against them.

The source of this problem is the following one: bacteria have a huge ability to adapt to different environments. Therefore, they mutate very quickly. After mutating a

resistant bacteria will exist, which will fastly replicate.

However, humans do also accelerate this process when they take antibiotics to kill viruses or other illnesses, as mentioned before antibiotics just kill bacterias. Furthermore, when you are sick with bacteria you start taking antibiotics but when you get better you stop taking them. Therefore, it is advisable to take them only under medical prescription.

HOW ANTIBIOTIC RESISTANCE HAPPENS



Despite it, antibiotics are also fed to animals when they are not needed. But the problem comes when humans eat those animals, passing antibiotics to our organism.

The resistance makes antibiotics useless and gives more work to scientists to find new non-resistance antibiotics. Moreover, due to the resistance, a lot of people are dying all over the world, approximately 700000 people every year. But it seems it will get worse by 2050, when it is thought 7 million people will die every year.

7. CONCLUSIONS



As we can see in the graphics, adults know more about antibiotics than teenagers. We thought that maybe children don't know about them as parents would give antibiotics to them without knowing what they are or how they work.

Despite the lack of unawareness of young people on the subject, there are adults who do not know about antibiotics as well. And only a few know about the antibiotic resistance.

To continue our project we should inform people about antibiotic resistance. Explain the misuse we tend to make, how it affects us and how it will affect us in the long run. Furthermore, as a society we should reduce the use of antibiotics and control everything we take in. But the most important thing is to keep searching for new antibiotics.

Antibiotic resistance has been accelerated by the overuse of antibiotics; consequently, we can prevent it by taking them only when they are prescribed by a certified health professional; we can also prevent infections by washing our hands... Policy planners can report people about the impact of antibiotic resistance and health professionals can also inform patients about the correct use of antibiotics.

Moreover, the agricultural sector can prevent infections by improving hygiene and not using antibiotics on healthy animals. If we did this, we would reduce the use of antibiotics, and the bacteria would not be so used to living with them, so they would not mutate so frequently.

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9. ACKNOWLEDGEMENTS

First of all we want to start by thanking Zientzia Azoka for giving us a second chance to compete again this year. Due to the situation we had to live through last year with Covid19, we could not continue with our project.

A very important person for our project to go ahead has been our biology teacher, Zorione. She was always ready to help us when we had any problem. We also want to thank our school, Elorrio BHI, for giving us the necessary resources to be able to develop this project. Such as the ICT classes and their technology, the help of the teachers, the cameras...

Also Itziar Urizar our mentor, we met with her through a video conference. We would like to thank her for giving us several ideas to develop our work.

Last but not least, we would like to thank all the people who took the time to answer our survey and helped us to find out what they know about antibiotics.



(Itziar Urizar)



(Elorrio BHI)