

# Why can antibiotics be short in supply?

## 01 OPEN TWO WINDOWS ON YOUR INTERNET BROWSER

Open this [video](#) in the first window and this [link](#) in the second window. Watch the first 12s of the video. What will you find out during this internet rally?

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<https://vis.csh.ac.at/antibiotics-shortage/static/antibiotics-shortage.mp4> | <https://vis.csh.ac.at/antibiotics-shortage/>

## 02 CLICK NOW ON PART I "GLOBAL MARKET"

**a** Watch the video until minute 1:10. Now select "Ingredients" in the upper left corner.

What does "ingredients" mean? \_\_\_\_\_

Which country was dark blue in 2021?  
\_\_\_\_\_

What does the dark blue color mean? \_\_\_\_\_

What color is the country you live in? \_\_\_\_\_

How important is this country for the production of active ingredients for antibiotics?  
\_\_\_\_\_

Move your mouse over other countries and look exactly where the dot on the line is.

Name two countries that are more important for the supply of antibiotics than the country you live in. \_\_\_\_\_

Which two countries were the most important in 2015? \_\_\_\_\_

**b** Now select "Products (packaged)" in the upper left corner.

What does "products (packaged)" mean? \_\_\_\_\_

Give an example (google it). \_\_\_\_\_

Which country was the most important in the world for packaged antibiotics in 2021?  
\_\_\_\_\_

Move your mouse over other countries and look exactly where the dot on the line is.

Name two countries that are more important for antibiotic supply than the country you live in. \_\_\_\_\_

What has changed since 2015? Give an example: \_\_\_\_\_

# 03

## NOW CLICK ON THE COUNTRY WHERE YOU LIVE

**a** Watch the video until minute 2:00. Then select "Ingredients" yourself in the upper right corner.

Which country does your country depend on the most? \_\_\_\_\_

Which countries occupy places 2 and 3 (in the case of direct dependence)?  
\_\_\_\_\_

What does "direct dependence" mean? \_\_\_\_\_

Imagine you want to buy some chocolate ice cream.

Are you directly or indirectly dependent on the ice cream parlor? \_\_\_\_\_

And on the chocolate manufacturer who delivers chocolate to the ice cream parlor?  
\_\_\_\_\_

Name one country that is very important indirectly in 2021 but supplies few ingredients directly: \_\_\_\_\_

**b** Now select "Products (packaged)" in the upper right corner.

Places 1, 2 and 3 in the direct dependency ranking are occupied by  
\_\_\_\_\_

Overall, your country is most dependent on these 3 countries:  
\_\_\_\_\_

# 04

## CLICK NOW ON PART III "INGREDIENTS & PRODUCTS"

Watch the video now ready

Which two countries are most important for the global antibiotic supply?  
\_\_\_\_\_

Ask yourself: What would happen if there were delivery problems here?  
\_\_\_\_\_

What are possible reasons for supply problems? \_\_\_\_\_

Research: Why have supply problems occurred recently?  
\_\_\_\_\_

BONUS: What could be done to avoid supply bottlenecks in the future?  
\_\_\_\_\_

# Why can antibiotics be short in supply?

## SOLUTIONS

01 |

Individual answer (e.g.: In the course of this Internet Rallye, I will find out which countries are particularly important for ensuring that enough antibiotics are available worldwide. I can also find out why shortages may repeatedly occur - in the country I live in, as well as in others.

02 | a

- These are the basic components of antibiotics, such as the active ingredients.
- China
- The dark blue color means that this country is particularly important for the global supply of antibiotics. Production disruptions in this country can have a global impact.
- Individual answer (e.g.: Austria is light blue.)
- Individual answer (e.g.: Austria therefore does not have a major influence on the availability of antibiotic agents in global terms.)
- E.g. India and USA
- India and China

02 | b

- Ready-made products like those we can buy at the pharmacy. Therefore, you not only need the antibiotics themselves, but also the packaging, the package inserts, etc.
- E.g. Ciprohexal and Penicillin V (students can consider which antibiotics they have already been prescribed)
- India
- E.g.: France and USA
- France has lost importance in the global supply of pre-packaged antibiotics.

03 | a - *individual answer, depending on the country in which the students live*

Ex. Austria:

- In terms of active ingredients, Austria depends the most on Spain.
- Ranked second in direct dependency (grey dots and numbers) is Italy, followed by Germany.
- Direct dependence means that Austria imports ingredients directly from this country.
- Directly
- Indirectly
- China (2021: direct: 11th place, but 2nd place overall)

03 | b - *individual answer, depending on the country in which the students live*

Ex. Austria:

- 1. Germany / 2. Italy / 3. Switzerland
- 1. Germany / 2. Italy / 3. USA

04 |

- China and India
- This can have worldwide repercussions and lead to global bottlenecks because there are hardly any other production sites that can step in.
- Individual answer: lack of personnel, defective equipment, transport problems, epidemics/pandemics ...
- On the one hand, the market became increasingly concentrated in China and India. When supply problems arose there in the course of the Corona pandemic, this affected the entire planet. On the other hand, the demand for antibiotics declined during the pandemic because people became ill less often due to mandatory masks and the like. The subsequent surge in demand also led to a shortage.