

Special Eurobarometer 445

Summary

Antimicrobial Resistance

Fieldwork
April 2016
Publication
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Survey requested by the European Commission,
Directorate-General for Health and Food Safety
and co-ordinated by the Directorate-General for Communication

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Survey conducted by TNS opinion & social at the request of the European Commission,
Directorate-General for Health and Food Safety

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(DG COMM "Strategy, Corporate Communication Actions and Eurobarometer" Unit)

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INTRODUCTION

Antimicrobial agents are synthetic or natural substances used to destroy or prevent the growth of bacteria, viruses and other micro-organisms (antibiotics are microbial agents which only react against bacteria). Since penicillin was introduced in the 1940s, antimicrobial medicines have been used for the medical treatment of humans and animals and as disinfectants and preservatives. They have played an essential role in treating infectious diseases and reducing the risk of post-surgical complications.

However, there is increasing concern that antimicrobial agents are declining in effectiveness, with the emergence and spread of microbes, which are resistant to the most affordable and effective drugs. While the emergence of resistant microorganisms is a natural biological phenomenon, it is exacerbated by the inappropriate use of antimicrobials in human and veterinary medicine and their unnecessary use in non-therapeutic situations, and also by environmental pollution involving antibiotics. The rise of resistant microbes is a threat to global public health. It is responsible for the avoidable deaths of humans and animals, increased healthcare and veterinary costs, and productivity losses.

In response, the European Union put in place an Action Plan against antimicrobial resistance covering the period 2011-2016. This Action Plan is intended to prevent the spread of microbial infections, ensure the appropriate use of antimicrobials, and undertake research into effective ways to combat resistance.¹ A Progress Report on the Action Plan – published in February 2015 – shows the state of play of steps taken to address this issue.² An evaluation of the Action Plan was commissioned by the Directorate General for Health and Food Safety (DG SANTE) in September 2015. The evaluation, which is currently in progress, aims to analyse whether the actions set out in the Action Plan were the most appropriate actions to be taken to combat AMR and which elements worked well or not and to identify areas for further improvement and set recommendations for the future. Given the widespread persistence of misconceptions about the nature and effectiveness of antimicrobials, communication, education and training forms an integral part of this strategy. Since 2008, the European Centre for Disease Prevention and Control (ECDC) has coordinated the “European Antibiotic Awareness Day” (EAAD), a European health initiative that provides a platform for and supports national campaigns to raise awareness on prudent use of antibiotics.³

As part of this strategy, the European Commission seeks to monitor levels of public use of and knowledge about antibiotics. The Directorate-General for Health and Consumers commissioned an EU wide survey in late 2009, published in April 2010 as Special Eurobarometer 338.⁴ A second survey was carried out in May-June 2013 (Special Eurobarometer 407, published November 2013).⁵ The current survey tracks progress on public use of and knowledge about antibiotics, and also introduces some new topics. The report addresses the following objectives:

- identify the use of antibiotics among the EU public: whether they have taken antibiotics in the last year, how they obtained them, and for what reason they took them;
- measure the levels of public knowledge about the nature and effectiveness of antibiotics and the risks associated with their unnecessary use;

¹ Communication from the Commission to the European Parliament and the Council, Action plan against the rising threats from Antimicrobial Resistance, COM (2011) 748, November 15, 2011

(http://ec.europa.eu/dgs/health_food-safety/docs/communication_amr_2011_748_en.pdf)

² Commission Staff Working Document: Progress report on the Action plan against the rising threats from Antimicrobial Resistance (2015), 11 March 2015

(http://ec.europa.eu/health/antimicrobial_resistance/docs/2015_amr_progress_report_en.pdf)

³ European Centre for Disease Prevention and Control, “European Antibiotic Awareness Day”

(<http://ecdc.europa.eu/en/EAAD/Pages/Home.aspx>)

⁴ http://ec.europa.eu/public_opinion/archives/ebs/ebs_338_en.pdf

⁵ http://ec.europa.eu/health/antimicrobial_resistance/docs/ebs_407_en.pdf

- determine the impact of the information Europeans have received, as well as their knowledge and attitudes;
- obtain perceptions of the most appropriate policy response to antibiotic resistance;
- assess knowledge of and attitudes towards the use of antibiotics in agriculture and the environment.

This survey was carried out by TNS Opinion & Social network in the 28 Member States of the European Union between the 9th and 18th April 2016. Some 27,969 respondents from different social and demographic groups were interviewed face-to-face at home in their mother tongue on behalf of Directorate-General for Health and Food Safety. The methodology used is that of Eurobarometer surveys as carried out by the Directorate-General for Communication ("Strategy, Corporate Communication Actions and Eurobarometer" Unit).

Note: In this report, countries are referred to by their official abbreviation. The abbreviations used in this report correspond to:

Belgium	BE	Latvia	LV
Bulgaria	BG	Luxembourg	LU
Czech Republic	CZ	Hungary	HU
Denmark	DK	Malta	MT
Germany	DE	The Netherlands	NL
Estonia	EE	Austria	AT
Greece	EL	Poland	PL
Spain	ES	Portugal	PT
France	FR	Romania	RO
Croatia	HR	Slovenia	SI
Ireland	IE	Slovakia	SK
Italy	IT	Finland	FI
Republic of Cyprus	CY *	Sweden	SE
Lithuania	LT	United Kingdom	UK
European Union – weighted average for the 28 Member States			EU28
BE, IT, FR, DE, LU, NL, DK, UK, IE, PT, ES, EL, AT, SE, FI			EU15 ***
BG, CZ, EE, HR, CY, LT, LV, MT, HU, PL, RO, SI, SK**			NMS13 ****
BE, FR, IT, LU, DE, AT, ES, PT, IE, NL, FI, EL, EE, SI, CY, MT, SK, LV, LT			Euro area
BG, CZ, DK, HR, HU, PL, RO, SE, UK			Non euro area

* Cyprus as a whole is one of the 28 European Union Member States. However, the 'acquis communautaire' has been suspended in the part of the country which is not controlled by the government of the Republic of Cyprus. For practical reasons, only the interviews carried out in the part of the country controlled by the government of the Republic of Cyprus are included in the 'CY' category and in the EU28 average.

** Provisional abbreviation which in no way prejudices the definitive name of this country, which will be agreed once the current negotiations at the United Nations have been completed

*** EU15 refers to the 15 countries forming the European Union before the enlargements of 2004 and 2007.

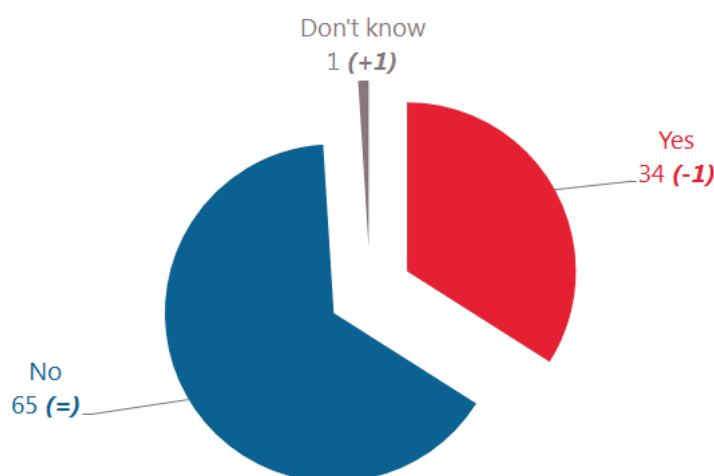
**** The NMS13 are the 13 'new Member States' which joined the European Union during the 2004, 2007 and 2013 enlargements.

We wish to thank the people throughout the European Union who have given their time to take part in this survey. Without their active participation, this study would not have been possible.

I. USE OF ANTIBIOTICS

Around one third (34%) of respondents say that they have taken antibiotics during the last year. This is very similar to the figure that was obtained in the 2013 Eurobarometer survey, when 35% said they had taken antibiotics. The **use of antibiotics** has remained at a similar level to that seen in the 2013 survey, after a decline between 2009 and 2013 (from 40% to 35%)⁶.

QB1 Have you taken any antibiotics orally such as tablets, powder or syrup in the last 12 months?
(% - EU)



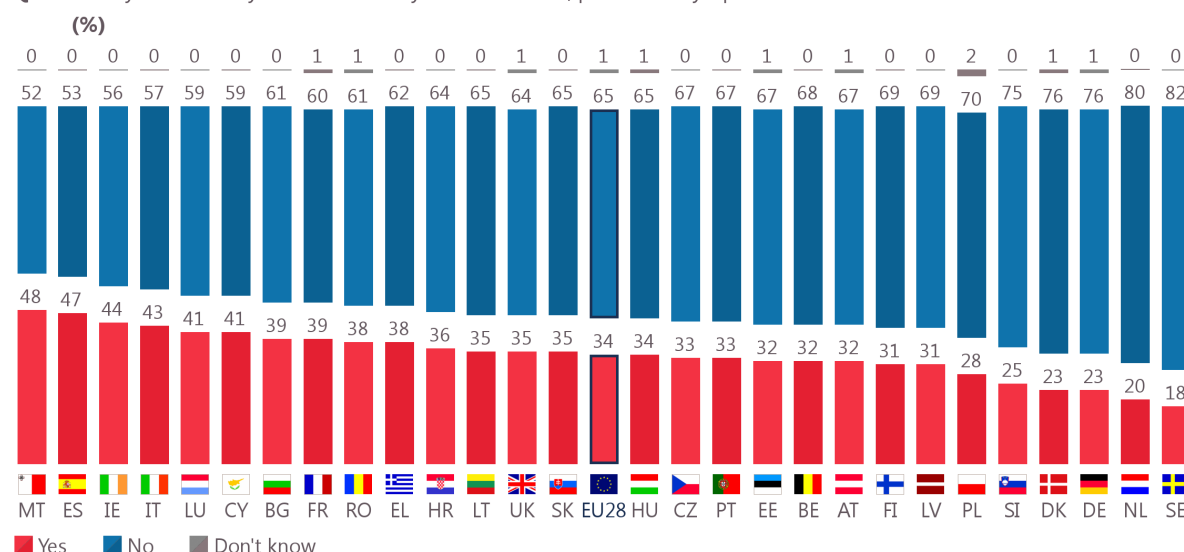
(April 2016 - May-June 2013)

Total base (N=27,969)

There is substantial variation between Member States, as was the case in the 2013 survey. In all countries, fewer than half of the respondents say that they have taken antibiotics. However, while nearly half of those polled in Malta (48%) and Spain (47%) answer positively, less than a quarter of those polled in Sweden (18%), the Netherlands (20%), Germany (23%) and Denmark (23%) have taken antibiotics in the course of the last year.

⁶ QB1. Have you taken any antibiotics orally such as tablets, powder or syrup in the last 12 months? ONE ANSWER ONLY. "Yes", "No", "DK".

QB1 Have you taken any antibiotics orally such as tablets, powder or syrup in the last 12 months?



Total base (N=27,969)

-The vast majority of Europeans obtain antibiotics from their health care provider-

To establish the most common sources of antibiotics used by European citizens, the survey asked how respondents obtained the last course of antibiotics they used.⁷ It is important to identify how Europeans obtain antibiotics, as the Community strategy on the prudent use of antimicrobials emphasises the need for Member States to ensure that systemic antibacterial agents, such as antibiotics, be limited to prescription-only use.⁸

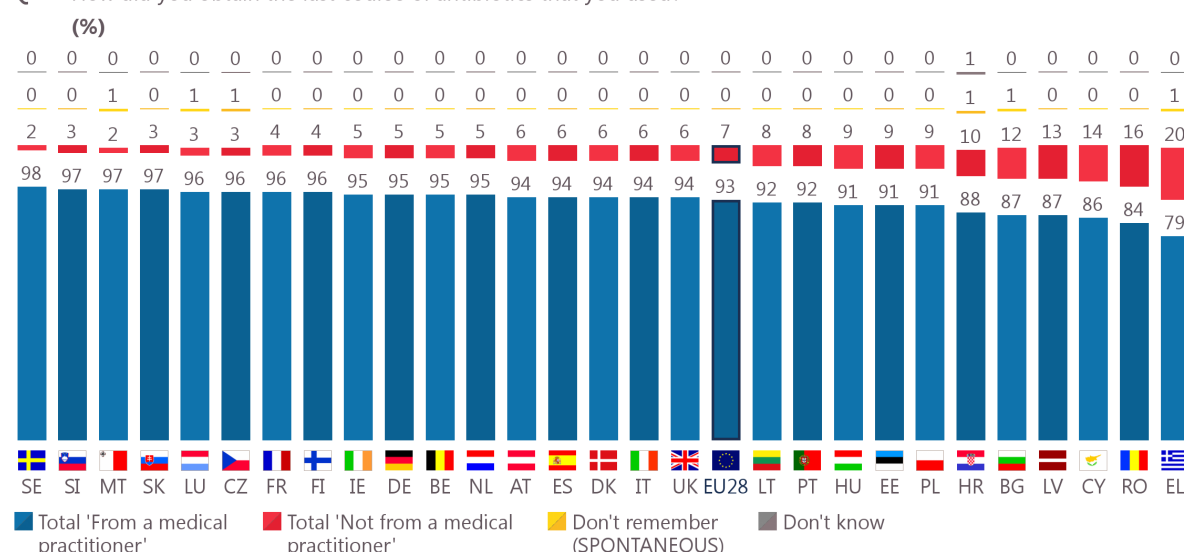
Almost all respondents (93%) say that they obtained their last course of antibiotics from their health care provider. By far the most common source of antibiotics was a medical prescription (73%), but a further 20% received antibiotics directly from a medical practitioner. Notably, there is a persistent minority who still consume antibiotics without a prescription (4%) or use those left over from a previous course (2%).

In all countries, a substantial majority of respondents say they obtained antibiotics from a medical practitioner. The lowest levels are found in Greece (79%), Romania (84%), Cyprus (86%), Latvia (87%), Bulgaria (87%) and Croatia (88%). In all other countries, more than nine in ten of those polled say they obtained antibiotics in this way, with the highest proportion found in Sweden (98%).

⁷ QB2 How did you obtain the last course of antibiotics that you used? ONE ANSWER ONLY. "From a medical prescription", "Administered by a medical practitioner", "You had some left over from a previous course", "Without prescription from a pharmacy", "Without prescription from elsewhere", "Don't remember (SPONTANEOUS)", "Don't know".

The results for the answers "From a medical prescription" and "Administered by a medical practitioner" are regrouped into the answer "Total from a medical practitioner"; the results for the answers "You had some left over from a previous course", "Without prescription from a pharmacy" and "Without prescription from elsewhere" are regrouped into the answer "Total not from a medical practitioner".

⁸ Council Recommendation of 15 November 2001 on the prudent use of antimicrobial agents in human medicine, (2002/77/EC), <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:034:0013:0016:EN:PDF>.

QB2 How did you obtain the last course of antibiotics that you used?

Base: Respondents who have taken antibiotics (N=9,582)

-Bronchitis, flu and a sore throat are the most common reasons for taking antibiotics-

Respondents who said they had taken antibiotics in the last year were asked for which reasons they had taken them. The interviewer presented respondents with a card on which a variety of illnesses and symptoms were printed, some of which antibiotics treat effectively (e.g. pneumonia) and some of which antibiotics are ineffective at treating (e.g. cold, flu).⁹ This question allows us to determine the extent to which Europeans use antibiotics appropriately¹⁰.

The most common responses among the listed options are bronchitis (18%, no change since 2013), flu (16%, down from 18% in 2013) and a sore throat (14%, up from 11% in 2013). There was also an increase in the proportion of respondents saying they took antibiotics for a fever (11%, compared with 7% in 2009).

The most common answer is non-specific, with over a fifth (23%, +2 percentage points compared to 2013) of those polled saying that they took antibiotics for reasons other than the list of options given to them.

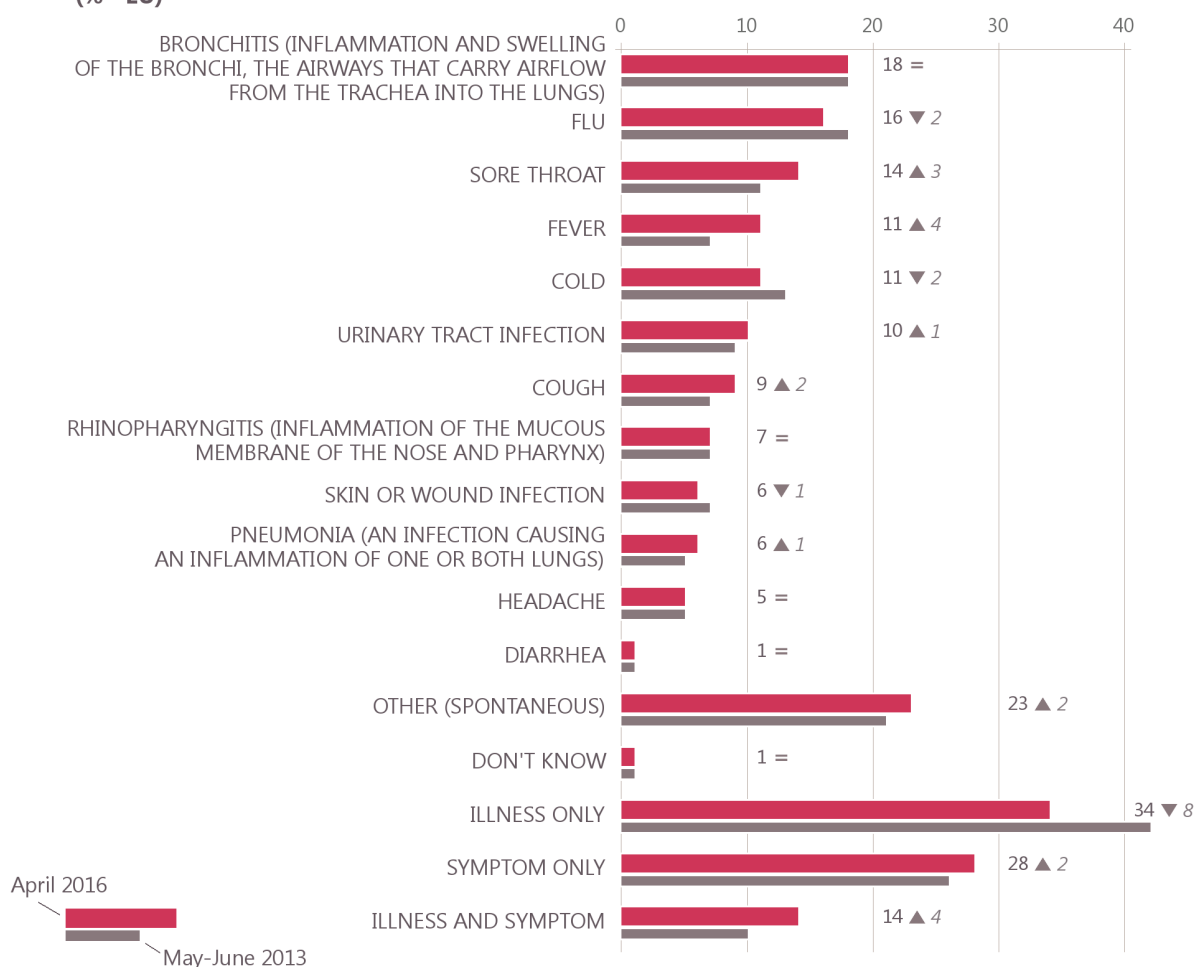
Overall, one in seven (14%, +4 percentage points since 2013) of those taking antibiotics do so to treat both illnesses and symptoms, while one in three respondents (34%, -8) take them to treat illness alone, and more than one in four (28%, +2) to treat symptoms alone.¹¹

⁹ QB3 What was the reason for last taking antibiotics that you used? MULTIPLE ANSWERS POSSIBLE. "Pneumonia (an infection causing an inflammation of one or both lungs)", "Bronchitis (inflammation and swelling of the bronchi, the airways that carry airflow from the trachea into the lungs)", "Rhinopharyngitis (inflammation of the mucous membrane of the nose and pharynx)", "Flu", "Cold", "Sore throat", "Cough", "Fever", "Headache", "Diarrhea", "Urinary tract infection", "Skin or wound infection", "Other (SPONTANEOUS)", "Don't know".

¹⁰ Antibiotics are ineffective against colds and flu, which are caused by viruses. Most sore throats and bronchial infections are caused by viruses and should not be treated with antibiotics, but in some cases bacteria can be the cause of these illnesses, and then antibiotics are appropriate.

¹¹ The results for the answers "Pneumonia (an infection causing an inflammation of one or both lungs)", "Bronchitis (inflammation and swelling of the bronchi, the airways that carry airflow from the trachea into the lungs)", "Rhinopharyngitis (inflammation of the mucous membrane of the nose and pharynx)", "Flu" and "Cold" are regrouped into the answer "Illness only". The results for the answers "Sore throat", "Cough", "Fever", "Headache", "Diarrhea", "Urinary tract infection" and "Skin or wound infection" are regrouped into the answer "Symptom only". Any combination of answers containing at least one answer used in the regrouping "Illness only" and at least one answer used in the regrouping "Symptom only" is regrouped into the answer "Illness and symptom".

QB3 What was the reason for last taking the antibiotics that you used? (MULTIPLE ANSWERS POSSIBLE)
(% - EU)



Base: Respondents who have taken antibiotics (N=9,582)

II. KNOWLEDGE OF ANTIBIOTICS

The second set of questions concern objective knowledge of antibiotics. Respondents were asked if each of four statements about antibiotics was 'true' or 'false'. The statements are as follows:

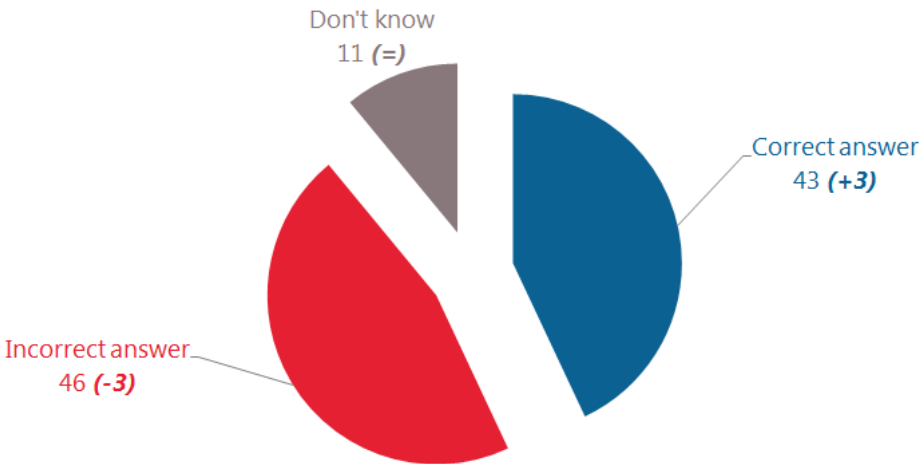
- Antibiotics kill viruses (FALSE)
- Antibiotics are effective against colds and flu (FALSE)
- Unnecessary use of antibiotics makes them become ineffective (TRUE)
- Taking antibiotics often has side-effects, such as diarrhea (TRUE)

-Less than half of Europeans are aware that antibiotics are ineffective against viruses-

Respondents were asked if it is true or false that antibiotics kill viruses.¹² Just over four out of ten (43%) of those polled correctly replied that antibiotics do not kill viruses. This is an improvement on 2013, when 40% of respondents held this opinion. Just under half (46%) gave the incorrect answer (-3 percentage points), while more than one in ten (11%) Europeans could not answer the question, a proportion unchanged since 2013.

¹² QB4.1 For each of the following statements, please tell me whether you think it is true or false. Antibiotics kill viruses. ONE ANSWER ONLY. "True", "False", "Don't know".

QB4.1 For each of the following statements, please tell me whether you think it is true or false.
Antibiotics kill viruses (% - EU)



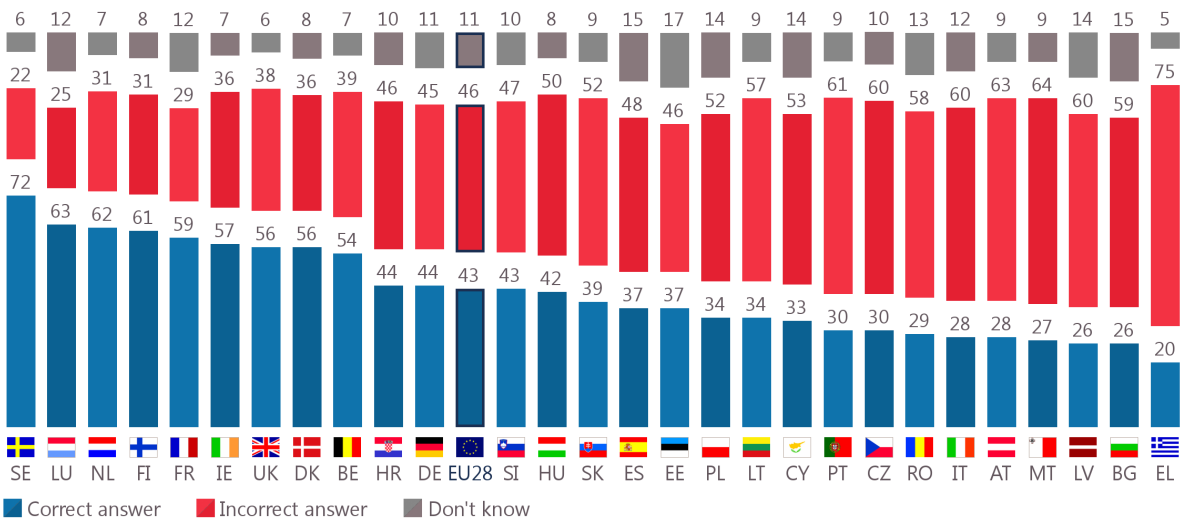
(April 2016 - May-June 2013)

Correct Answer=False
Total base (N=27,969)

There are significant differences on this question at the country level. In nine countries, a majority of respondents correctly answered that antibiotics do not kill viruses. In Sweden, almost three quarters (72%) of respondents gave the correct reply. In the other eight countries, where a majority of respondents gave a correct answer, the proportion ranges between 54% and 63%.

In 9 countries, less than a third (33%) of those polled gave the correct answer. Levels of knowledge are lowest in Greece (20%), followed by Bulgaria (26%), Latvia (26%) and Malta (27%).

QB4.1 For each of the following statements, please tell me whether you think it is true or false.
Antibiotics kill viruses (%)



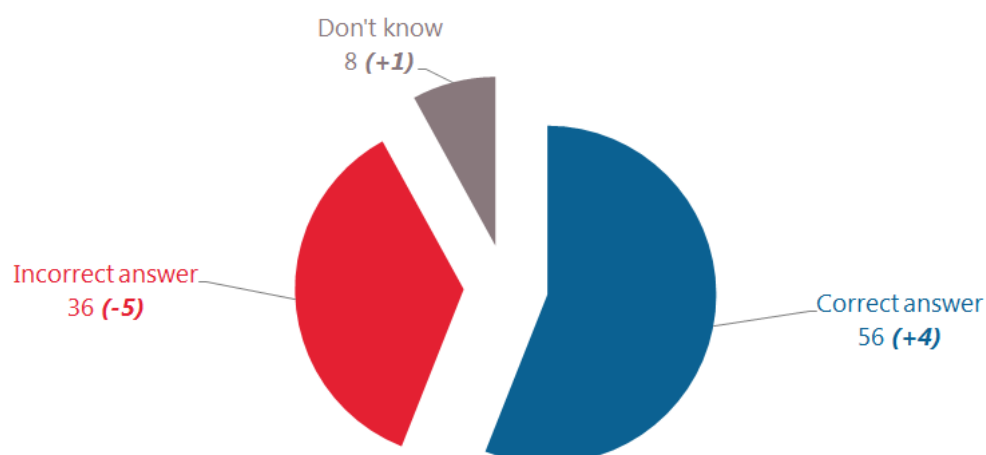
Correct Answer=False
Total base (N=27,969)

-A slim majority of Europeans are aware that antibiotics are ineffective against cold and flu-

Respondents were asked if it is true or false that antibiotics are effective against cold and flu.¹³ Just over half (56%) of respondents gave the correct answer that antibiotics are not effective in these cases, an increase of 4 percentage points since 2013. Just over a third (36%) gave the incorrect answer (-5 percentage points), while 8% could not give an answer (+1 percentage point).

QB4.2 For each of the following statements, please tell me whether you think it is true or false.

Antibiotics are effective against colds and flu (% - EU)



(April 2016 - May-June 2013)

Correct Answer=False

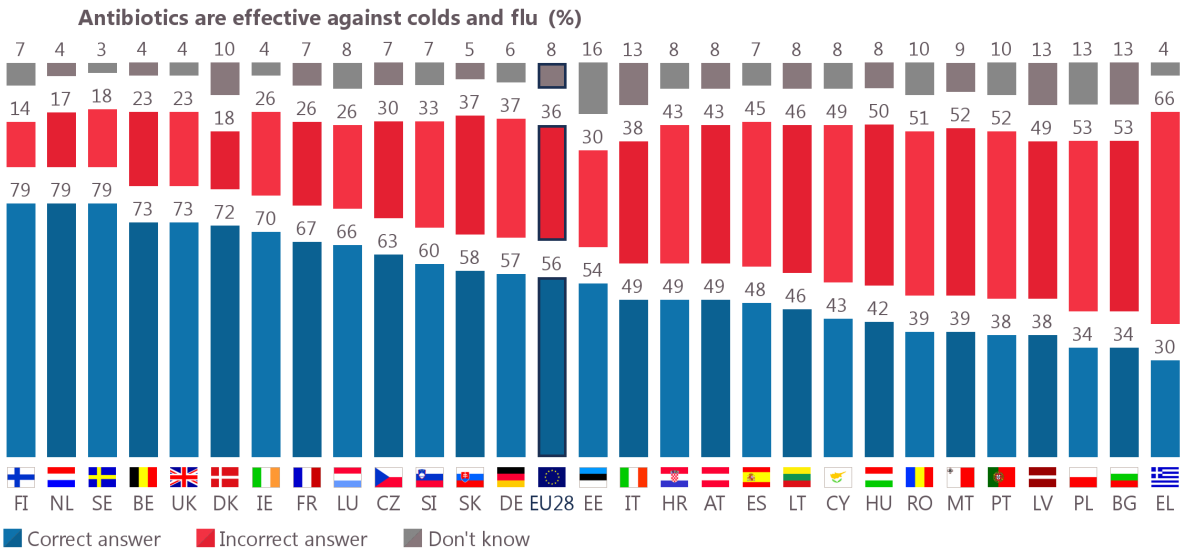
Total base (N=27,969)

The country-level distribution shows some similarities to that for the previous question. In 14 Member States, the proportion of respondents giving the correct answer to this question represents the majority. More than three quarters of respondents gave the correct answer in Finland, the Netherlands and Sweden (all 79%).

Respondents are least likely to answer the question correctly in Greece (30%), Bulgaria (34%) and Poland (34%).

¹³ QB4.2 For each of the following statements, please tell me whether you think it is true or false. Antibiotics are effective against cold and flu. ONE ANSWER ONLY. "True", "False", "Don't know".

QB4.2 For each of the following statements, please tell me whether you think it is true or false.

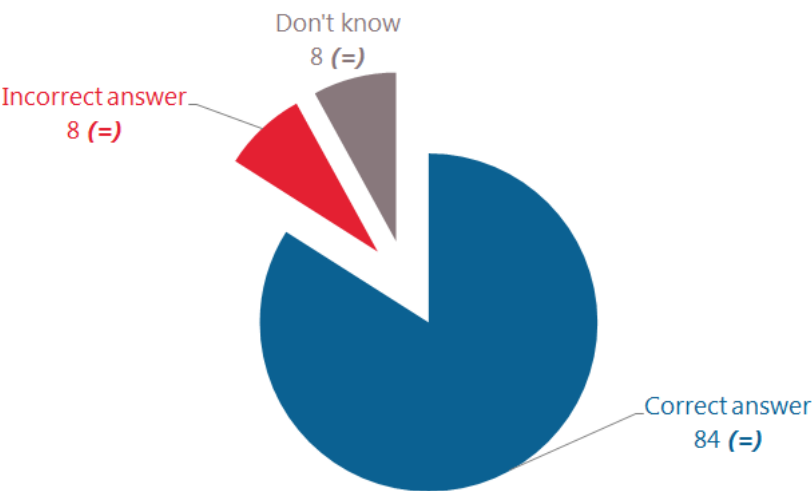


-Most Europeans are aware that unnecessary use of antibiotics makes them become ineffective-

Respondents were asked whether it was true or false that the unnecessary use of antibiotics makes them become ineffective.¹⁴ A large majority (84%) of those polled gave the correct answer that the overuse of antibiotics reduces their effectiveness. Just under one in ten gave the wrong answer (8%). The distribution of answers is exactly the same as in 2013.

QB4.3 For each of the following statements, please tell me whether you think it is true or false.

Unnecessary use of antibiotics makes them become ineffective (% - EU)



(April 2016 - May-June 2013)

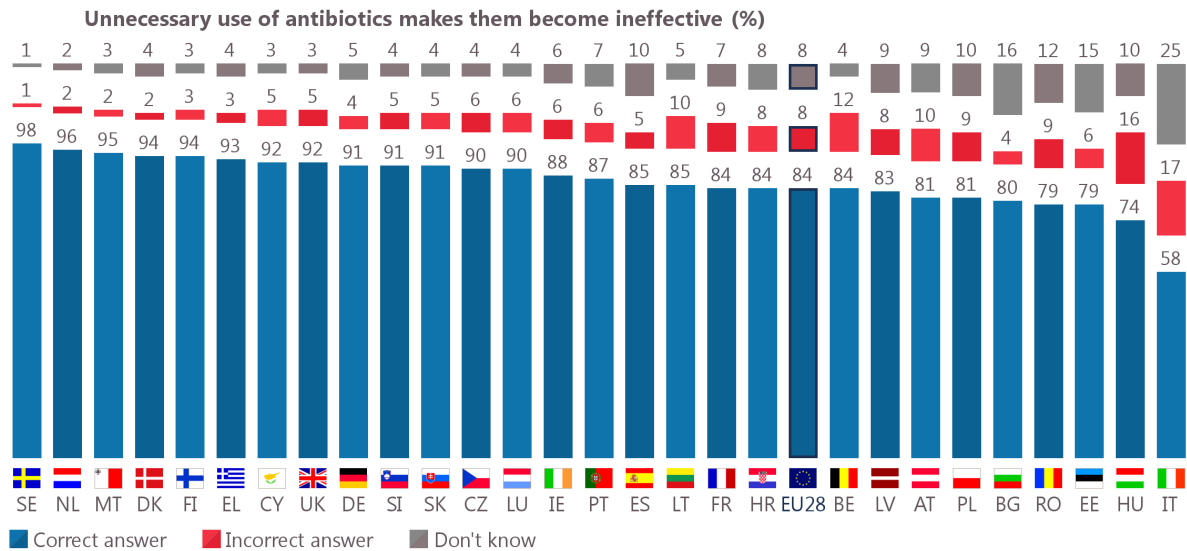
Correct Answer=True
Total base (N=27,969)

¹⁴ QB4.3 For each of the following statements, please tell me whether you think it is true or false. Unnecessary use of antibiotics make them become ineffective. ONE ANSWER ONLY. "True", "False", "Don't know".

In every country except Italy and Hungary, more than three quarters of respondents know that unnecessary use of antibiotics makes them become ineffective. The proportion in Italy is much lower (58%), and a quarter (25%) of respondents in Italy cannot give an answer to this question, compared with 8% on average in the EU.

Almost all respondents in Sweden (98%), the Netherlands (96%) and Malta (95%) answered correctly, and at least nine in ten respondents gave correct answers in another 10 countries.

QB4.3 For each of the following statements, please tell me whether you think it is true or false.



Correct Answer= True
Total base (N=27,969)

-Two thirds of Europeans know that frequent use of antibiotics can lead to side-effects-

Respondents were asked whether it is true or false that taking antibiotics often has side-effects such as diarrhea.¹⁵ Two thirds (66%) of respondents gave the correct answer that antibiotics can produce side-effects. There is more uncertainty over this issue than the preceding ones: a fifth (20%) of respondents were unable to give an answer to this question. A slightly smaller proportion (14%) gave an incorrect answer. As in the previous question, findings have remained very stable since the 2013 survey.

¹⁵ QB4.4 For each of the following statements, please tell me whether you think it is true or false. Taking antibiotics often has side-effects such as diarrhea. ONE ANSWER ONLY. "True", "False", "Don't know".

QB4.4 For each of the following statements, please tell me whether you think it is true or false.
Taking antibiotics often has side-effects such as diarrhea (% - EU)



(April 2016 - May-June 2013)

Correct Answer=True

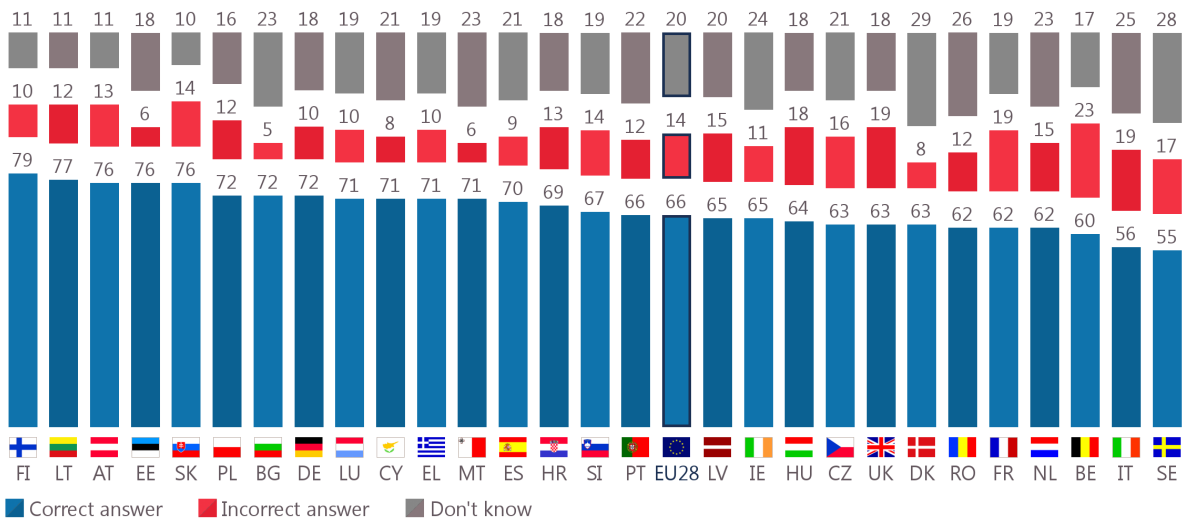
Total base (N=27,969)

In all Member States, more than half of respondents answered correctly. The highest proportions are found in Finland (79%), Lithuania (77%), Austria, Estonia and Slovakia (all 76%).

Respondents in Sweden (55%) and Italy (56%) express the lowest levels of knowledge. In the case of Italy, this is consistent with the previous question, but the low level of knowledge in Sweden is in contrast to the other knowledge questions, where Sweden is among the highest ranked countries.

There is also some variation in the proportions who were unable to give an answer. This is highest in Denmark (29%) and Sweden (28%), and lowest in Slovakia (10%), Finland, Lithuania and Austria (all 11%).

QB4.4 For each of the following statements, please tell me whether you think it is true or false.
Taking antibiotics often has side-effects such as diarrhea (%)



Correct Answer=True

Total base (N=27,969)

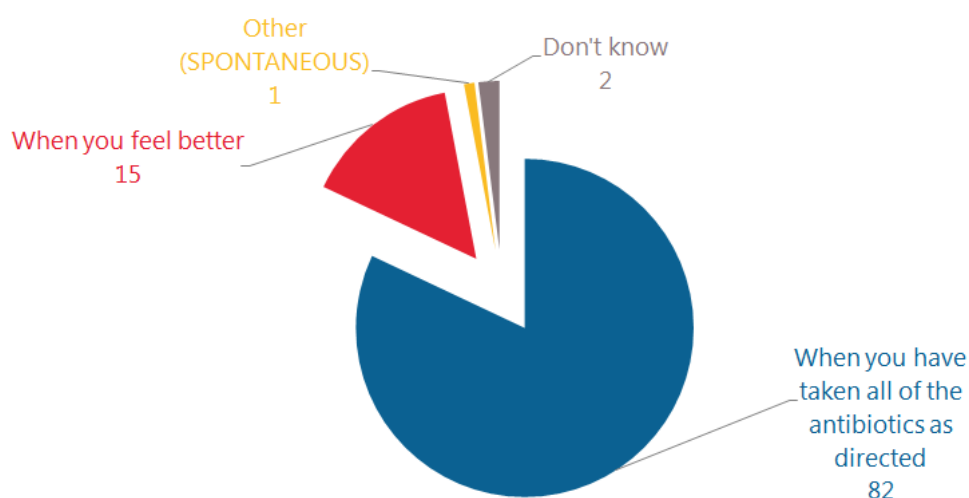
-Four in five recognise the need to complete the prescribed dose of antibiotics -

Respondents were asked when they think you should stop taking antibiotics once you have begun a course of treatment.¹⁶ More than four fifths (82%) correctly answered that you should only stop when you have taken all of the antibiotics as directed, while 15% say you can stop when you feel better.

This is a new question that was not asked in previous surveys.

QB5 When do you think you should stop taking antibiotics once you have begun a course of treatment?

(% - EU)



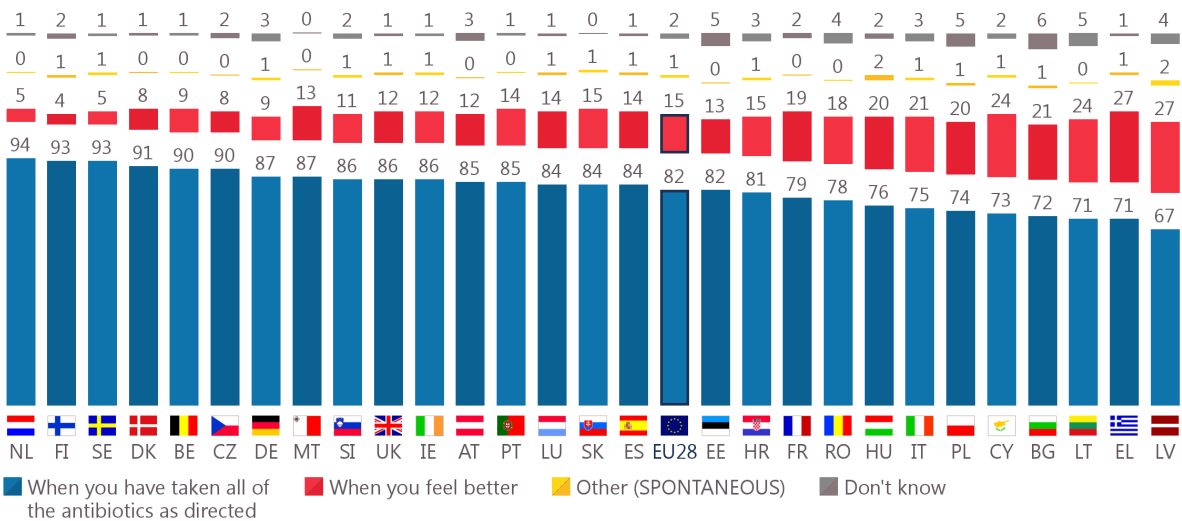
Total base (N=27,969)

In six countries, at least nine in ten respondents say that you should only stop taking antibiotics when you have taken all of the prescribed dose as directed. Respondents are most likely to say this in the Netherlands (94%), Finland and Sweden (both 93%).

Respondents in Latvia are the least likely to say this (67%), followed by those in Lithuania (71%), Greece (71%), Bulgaria (72%), Cyprus (73%) and Poland (74%).

¹⁶ QB5. When do you think you should stop taking antibiotics once you have begun treatment? ONE ANSWER ONLY. "When you feel better", "When you have taken all of the antibiotics as directed", "Don't know".

QB5 When do you think you should stop taking antibiotics once you have begun a course of treatment?
(%)

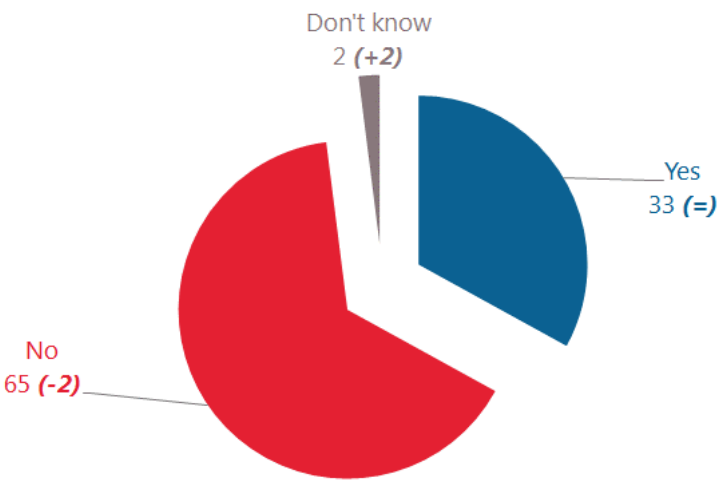


Total base (N=27,969)

III. INFORMATION ABOUT THE CORRECT USE OF ANTIBIOTICS

Respondents were asked if they remembered receiving any information about the unnecessary use of antibiotics in the last 12 months.¹⁷ Only a third (33%) of respondents say that they received such information. This is the same proportion as was recorded in 2013.

QB6 In the last 12 months, do you remember getting any information about not taking antibiotics unnecessarily, for example for a cold or the flu?
(% - EU)



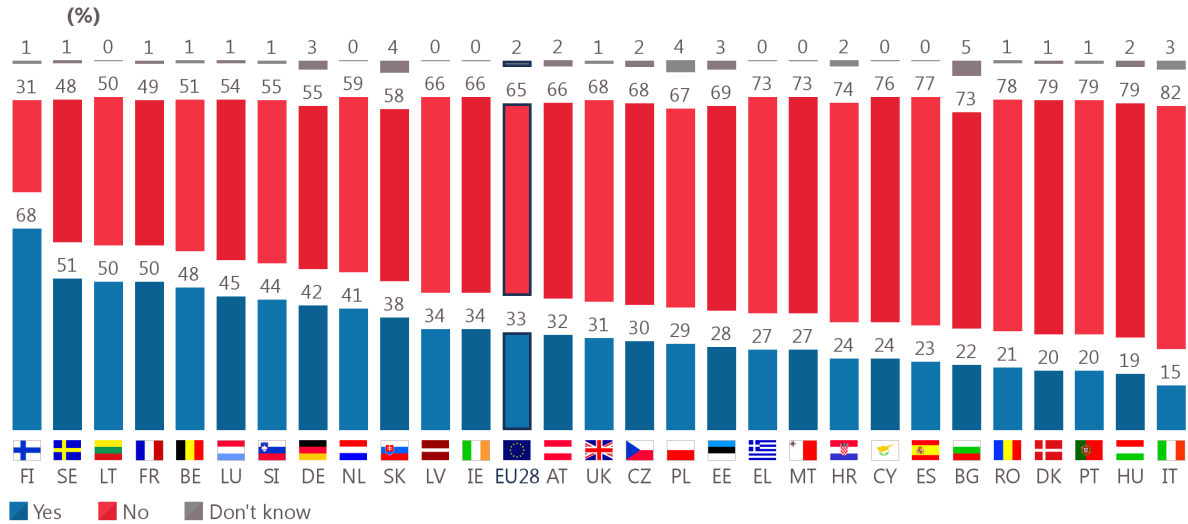
(April 2016 - May-June 2013)

Total base (N=27,969)

¹⁷ QB6 In the last 12 months, do you remember getting any information about not taking any antibiotics unnecessarily, for example, messages about not taking antibiotics in case of cold or flu? ONE ANSWER ONLY. "Yes", "No".

There are substantial country-level differences on this question. In Finland, around two thirds (68%) of respondents recall receiving information about the unnecessary use of antibiotics, and at least half of respondents recall getting information in Sweden (51%), Lithuania and France (both 50%). However, in nine countries less than a quarter of respondents recall getting information about antibiotics. The lowest proportions are found in Italy (15%), Hungary (19%), Portugal and Denmark (both 20%).

QB6 In the last 12 months, do you remember getting any information about not taking antibiotics unnecessarily, for example for a cold or the flu?



Total base (N=27,969)

- Europeans receive information about antibiotics either from a doctor or the media -

Those respondents who said they received information in the last 12 months about not taking antibiotics unnecessarily were asked to identify the source of this information.¹⁸

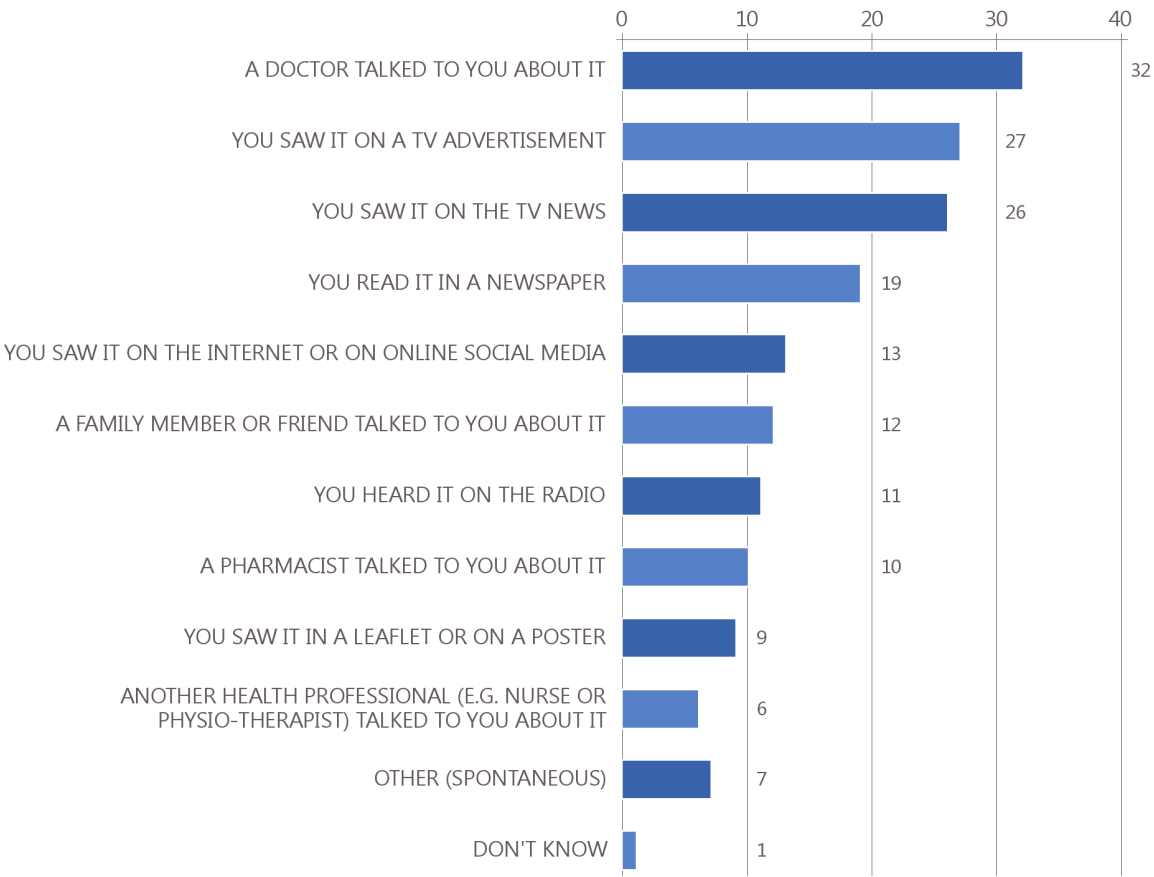
Respondents are most likely to say that they received the information from a doctor (32%). This is by far the most common of professional sources; one in ten say that they got the information from a pharmacist (10%), while 6% say it was from another health professional.

Otherwise, respondents are likely to have got their information from the media, most commonly from a television advertisement (27%) or the television news (26%). Around one in five (19%) got the information from a newspaper, while 13% obtained information from the Internet or online social media, and 11% from the radio.

The other sources of information are friends or family members (12%) and leaflets or posters (9%).

¹⁸ QB7. How did you first get this information about not taking any antibiotics unnecessarily? ONE ANSWER ONLY. "A doctor talked to you about it", "A pharmacist talked to you about it", "Another health professional (e.g. nurse or physio-therapist) talked to you about it", "A family member or friend talked to you about it", "You saw it on a TV advertisement", "You saw it on the Internet or on online social media", "You saw it in a leaflet or on a poster", "You read it in a newspaper", "You saw it on the TV news", "You heard it on the radio", "Other", "Don't know".
The results for the answers "A doctor talked to you about it", "A pharmacist talked to you about it" and "Another health professional (e.g. nurse, physical therapist) talked to you about it" are regrouped into the answer "Professional or health care facility".

QB7 How did you first get this information about not taking any antibiotics unnecessarily? (MULTIPLE ANSWERS POSSIBLE)
(% - EU)



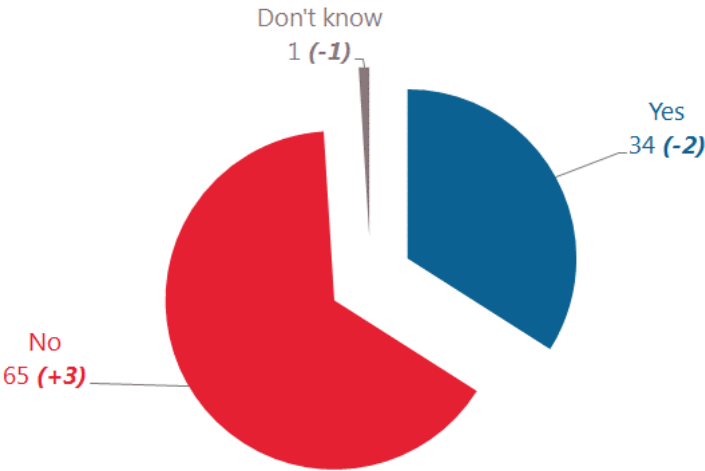
Base: Respondents who have received information about not taking antibiotics unnecessarily (N=9,222)

-A third of Europeans change their views after receiving information-

Those respondents who said they received information about antibiotics were asked whether they had changed their mind about antibiotics as a result of that information.¹⁹ Around a third (34%) of those who received information say that their views were changed by the information they received. This proportion is slightly lower than the figure obtained in the 2013 survey (36%).

¹⁹ QB8. Did the information that you received change your views on antibiotics? ONE ANSWER ONLY. “Yes”, “No”, “Don’t know”.

QB8 Did the information that you received change your views on using antibiotics?
(% - EU)



(April 2016 - May-June 2013)

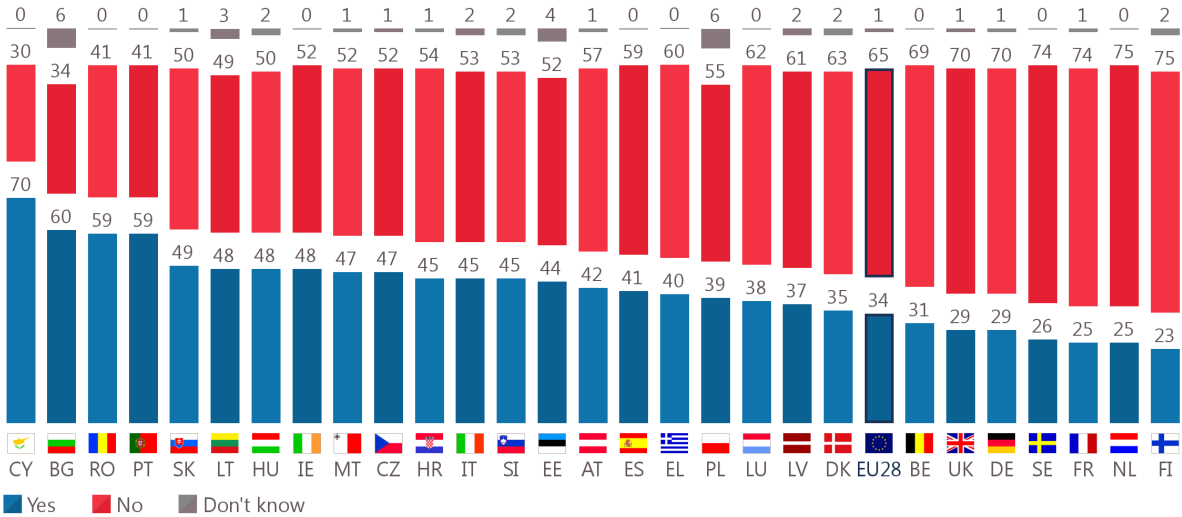
Base: Respondents who have received information about not taking antibiotics unnecessarily (N=9,222)

Once again the findings show substantial country-level differences. In four countries, more than half of respondents say that the information they received changed their views: Cyprus (70%), Bulgaria (60%), Romania and Portugal (both 59%),

By contrast, less than a third of respondents say they have changed their views in Finland (23%), the Netherlands (25%), France (25%), Sweden (26%), Germany (29%), the UK (29%) and Belgium (31%).

In general, the countries with the lowest levels of knowledge about antibiotics are also those where respondents are most likely to say that their views have been changed by the information they have received. Equally, in countries where knowledge levels are highest, respondents are less likely to say that their views have changed.

QB8 Did the information that you received change your views on using antibiotics?
(%)



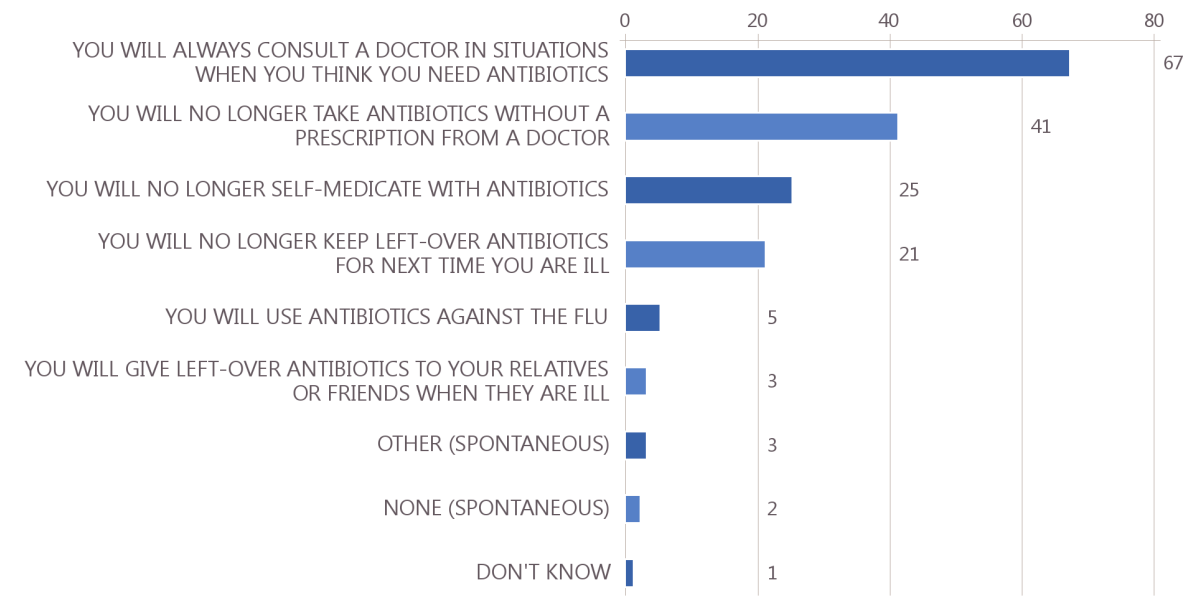
Base: Respondents who have received information about not taking antibiotics unnecessarily (N=9,222)

Having established whose views were changed by the information received, we now turn to the question of *how* those views were changed. It should be noted that this involves drawing on a small subset of the overall survey sample. As a result, it is more difficult to draw conclusions about further subsets at the level of countries or socio-demographic categories, as they may be based on sample sizes which are too small to generate statistically significant results.

Those respondents who said they had changed their views on antibiotics as a result of the information they had received were asked to indicate how their behaviour would change as a result. The interviewer read out several options, from which respondents could choose as many as were relevant.²⁰

Two thirds (67%) of respondents whose views were changed by information on antibiotics say that as a result they will always consult a doctor about the need to take antibiotics. Two in five (41%) say they will no longer take antibiotics without a prescription from a doctor, and one in four (25%) say they will no longer self-medicate, while slightly fewer (21%) say they will no longer use left-over antibiotics.

QB9 On the basis of the information you received, how do you now plan to use antibiotics? (MULTIPLE ANSWERS POSSIBLE)
(% - EU)



Base: Respondents who have changed their views based on this information (N=3,121)

All respondents were asked about the topics that they would like to receive more information on. They were presented with a list of five options, and were able to choose as many as they liked²¹.

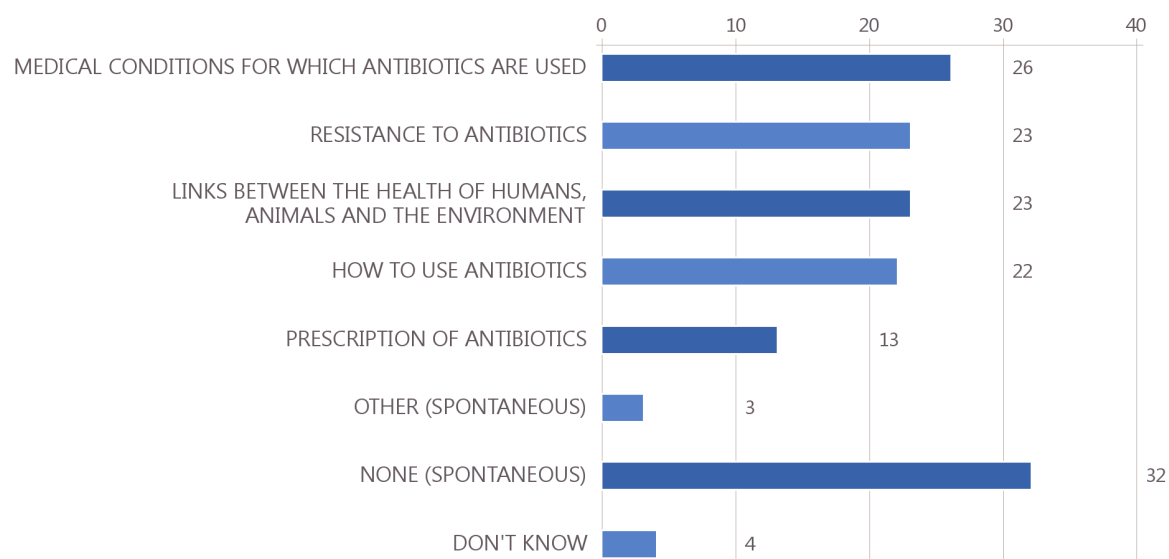
Around a quarter of respondents say they would like more information on the medical conditions for which antibiotics are used (26%), while slightly smaller proportions say they would like information on resistance to antibiotics (23%), links between the health of humans, animals and the environment (23%) and how to use antibiotics (22%). Respondents are less likely to say that they

²⁰ QB9 On the basis of the information you received, how do you now plan to use antibiotics? MULTIPLE ANSWERS POSSIBLE. "You will always consult a doctor in situations when you think you need an antibiotic", "You will no longer self-medicate with antibiotics", "You will no longer take antibiotics without a prescription from a doctor", "You will no longer keep left over antibiotics for next time you are ill", "You will use antibiotics against the flu", "You will give left-over antibiotics to your relatives or friends when they are ill", "Other (SPONTANEOUS)", "None (SPONTANEOUS)", "Don't know".

²¹ QB10 On which topics, if any, would you like to receive [more] information? MULTIPLE ANSWERS POSSIBLE. "Resistance to antibiotics", "How to use antibiotics", "Medical conditions for which antibiotics are used", "Prescription of antibiotics", "Links between health of humans, animals and the environment" "Other (SPONTANEOUS)", "None (SPONTANEOUS)", "Don't know".

would like to receive information about the prescription of antibiotics (13%). However, almost a third of respondents say that they would not like to receive any information on any topic (32%).

QB10 On which topics, if any, would you like to receive more information? (MULTIPLE ANSWERS POSSIBLE)
(% - EU)



Total base (N=27,969)

-The vast majority of respondents see doctors as a trustworthy source of information on antibiotics-

Respondents were asked to give their opinion on which sources of information about antibiotics are the most trustworthy. The interviewer showed the respondent a card with a number of options, from which the respondent could select a maximum of three.²²

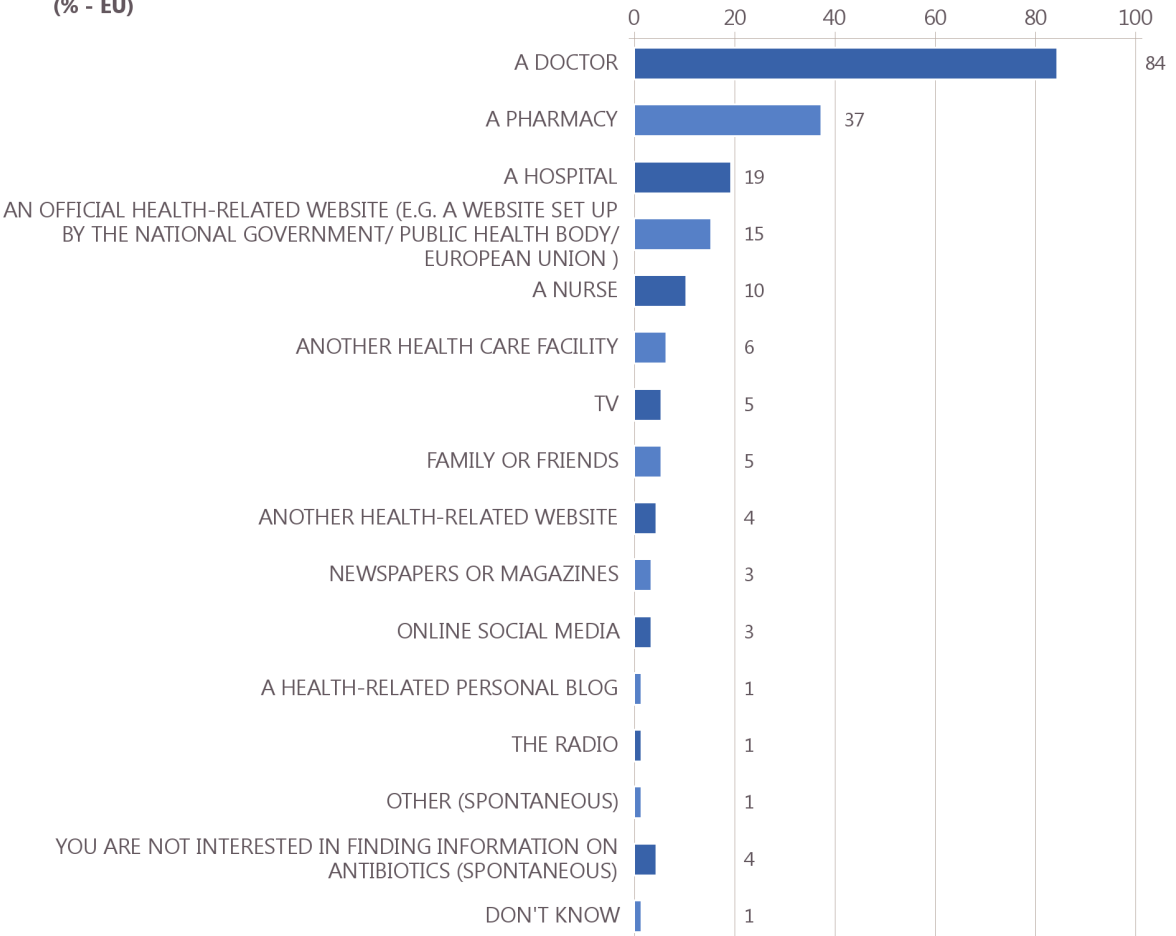
Respondents see medical professionals or health care facilities as the most trustworthy sources of information. More than four in five respondents (84%) identify doctors as an important source of information, while 37% would use a pharmacy to get trustworthy information, 19% would get information from a hospital, and 15% would visit an official health-related website. Some respondents would like to get information from a nurse (10%) or another health care facility (6%).

Respondents are less likely to opt for non-health-related sources, such as television (5%), family and friends (5%) or other health related websites (4%).

The response options have been modified from the 2013 survey, so it is not possible to provide direct comparisons with the previous findings. However, it is clear that respondents continue to value medical professionals or health care facilities ahead of other sources.

²² QB11 Which of the following sources of information would you use in order to get trustworthy information on antibiotics? MAXIMUM 3 ANSWERS. "A doctor", "A nurse", "A pharmacy", "A hospital", "Another health care facility", "Family or friends", "An official health related website (e.g. a website from the national government/public health body/European Union)", "A health related personal blog", "Another health related website", "Online social media", "TV", "Newspapers or magazines", "The radio" "Other (SPONTANEOUS)", "You are not interested in finding information on antibiotics (SPONTANEOUS)", "Don't know".

QB11 Which of the following sources of information would you use in order to get trustworthy information on antibiotics?
(MAX. 3 ANSWERS)
(% - EU)

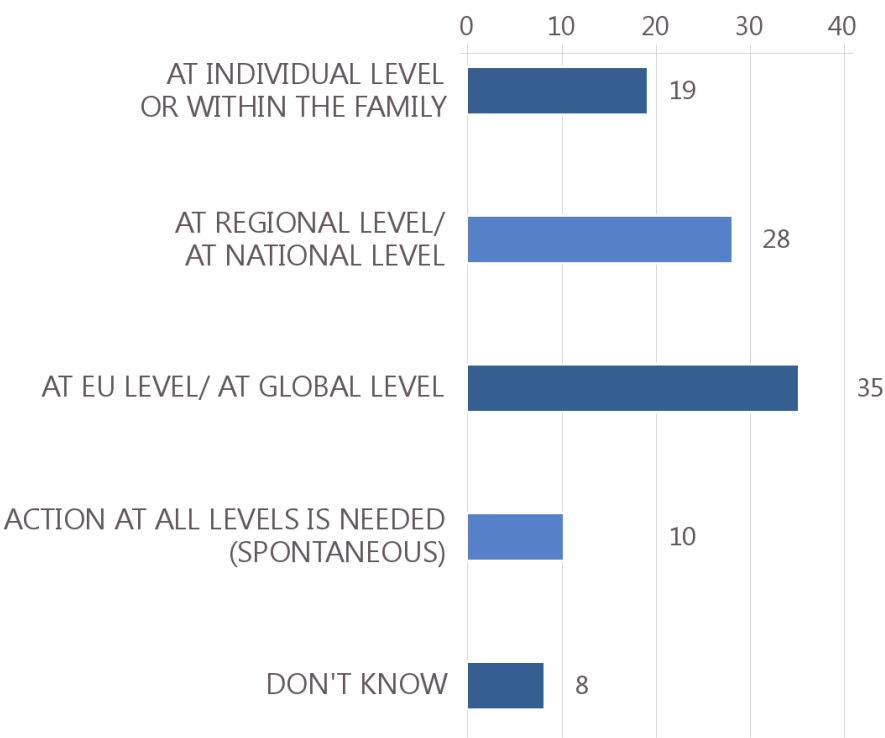


Total base (N=27,969)

IV. POLICY RESPONSE

Europeans are aware that action is needed at all levels, with 35% in favour of action at global and EU level. 28% think that action should be taken at national/regional level, whereas 19% consider it should be tackled at the individual level or within the family²³.

QB12 At what level do you believe it is most effective to tackle the resistance to antibiotics?
(% - EU)



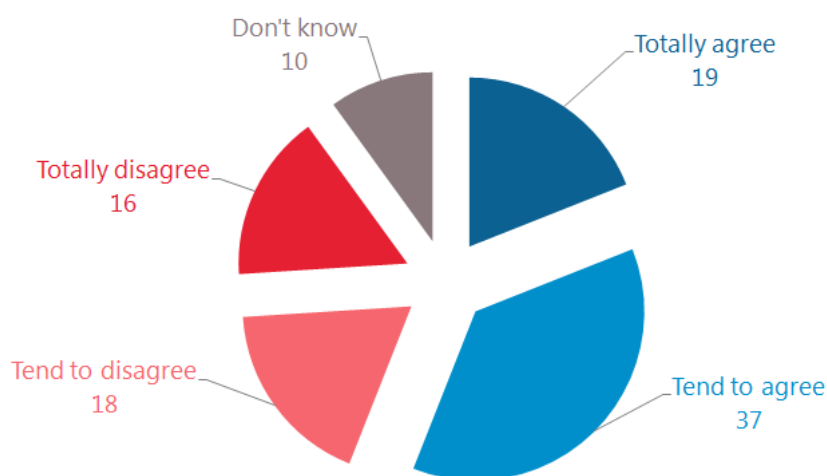
Total base (N=27,969)

²³ QB12 At what level do you believe it is most effective to tackle antimicrobial resistance? ONE ANSWER ONLY. "At individual, family level", "At regional level", "At national level", "At EU level", "At global level", "Action at all levels is needed (SPONTANEOUS)", "Don't know".

V. USE OF ANTIBIOTICS IN AGRICULTURE AND THE ENVIRONMENT (ONE HEALTH)

Respondents were asked whether they agree that sick animals have the right to be treated with antibiotics if this is the most appropriate treatment.²⁴ More than half of Europeans (56%) agree, including around a fifth (19%) who totally agree. Around a third (34%) disagree, including 16% who totally disagree, while 10% do not give an opinion.

QB13 To what extent do you agree or disagree that sick farm animals should be treated with antibiotics if this is the most appropriate treatment?
(% - EU)



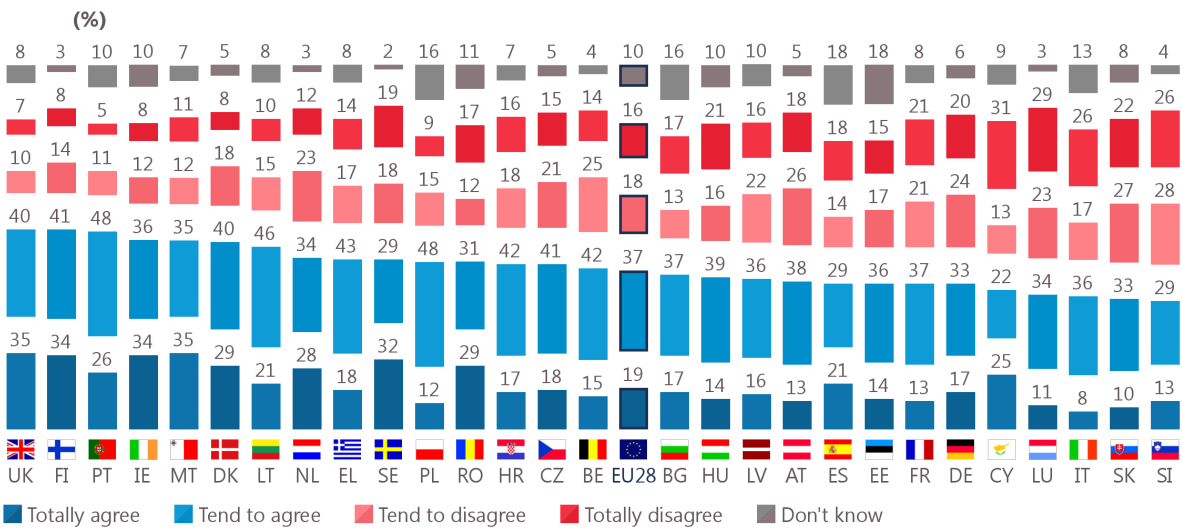
Total base (N=27,969)

Respondents in the UK and Finland (both 75%) are the most likely to agree that sick animals have the right to be treated with antibiotics if this is the most appropriate treatment, followed by respondents in Portugal (74%), Ireland and Malta (both 70%). The proportions that 'totally agree' are highest in the UK (35%), Malta (35%), Finland (34%) and Ireland (34%).

By contrast, more than half of respondents disagree with the statement in Slovenia (54%) and Luxembourg (52%).

²⁴ QB13 To what extent do you agree or disagree that sick farm animals should be treated with antibiotics if this is the most appropriate treatment? ONE ANSWER ONLY. "Totally agree", "Tend to agree", "Tend to disagree", "Totally disagree", "Don't know".

QB13 To what extent do you agree or disagree that sick farm animals should be treated with antibiotics if this is the most appropriate treatment?



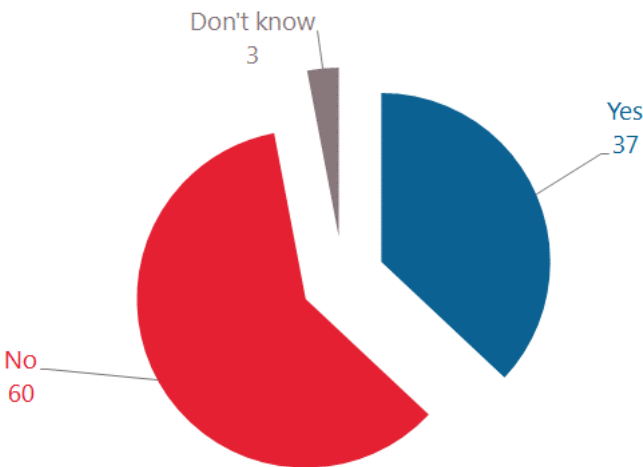
Total base (N=27,969)

-Just over a third are aware of the EU ban on the use of antibiotics on farm animals-

Respondents were asked whether they were aware that the use of antibiotics to stimulate growth in farm animals is banned in the EU.²⁵

Just over a third of Europeans (37%) say that they were aware of the EU ban, while the majority either say that they were not aware (60%) or are unsure (3%).

QB14 Do you know that using antibiotics to stimulate growth in farm animals is banned within the EU?
(% - EU)



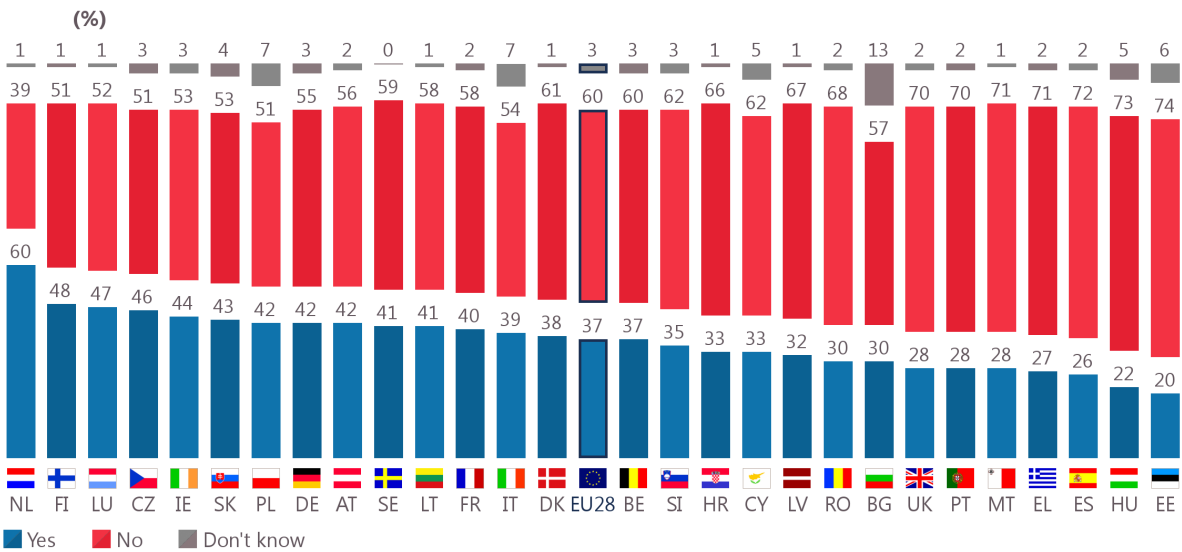
Total base (N=27,969)

²⁵ QB14 Do you know that within the EU using antibiotics to stimulate growth in farm animals is banned? ONE ANSWER ONLY. "Yes", "No", "Don't know".

The Netherlands is the only country where a majority of respondents (60%) say they were aware of the ban on the use of antibiotics within the EU to stimulate growth in farm animals. The next highest proportions are found in Finland (48%), Luxembourg (47%) and the Czech Republic (46%).

Respondents in Estonia are the least likely to be aware of the ban (20%), with relatively low proportions also seen in Hungary (22%), Spain (26%), Greece (27%), the UK, Portugal and Malta (all 28%).

QB14 Do you know that using antibiotics to stimulate growth in farm animals is banned within the EU?



Total base (N=27,969)

TECHNICAL SPECIFICATIONS

Between the 9th and the 18th of April 2016, TNS opinion & social, a consortium created between TNS political & social, TNS UK and TNS opinion, carried out the wave 85.1 of the EUROBAROMETER survey, on request of the EUROPEAN COMMISSION, Directorate-General for Communication, "Strategy, Corporate Communication Actions and Eurobarometer" Unit.

The wave 85.1 includes the SPECIAL EUROBAROMETER 445 and covers the population of the respective nationalities of the European Union Member States, resident in each of the 28 Member States and aged 15 years and over.

	COUNTRIES	INSTITUTES	N° INTERVIEWS	DATES FIELDWORK		POPULATION 15+	PROPORTION EU28
BE	Belgium	TNS Dimarso	1,007	09/04/16	18/04/16	9,263,570	2.18%
BG	Bulgaria	TNS BBSS	1,040	09/04/16	18/04/16	6,294,563	1.48%
CZ	Czech Rep.	TNS Aisa	1,047	09/04/16	18/04/16	8,955,829	2.11%
DK	Denmark	TNS Gallup DK	1,010	09/04/16	18/04/16	4,625,032	1.09%
DE	Germany	TNS Infratest	1,563	09/04/16	18/04/16	71,283,580	16.79%
EE	Estonia	TNS Emor	1,004	09/04/16	18/04/16	1,113,355	0.26%
IE	Ireland	Behaviour & Attitudes	1,016	09/04/16	18/04/16	3,586,829	0.84%
EL	Greece	TNS ICAP	1,008	09/04/16	18/04/16	8,791,499	2.07%
ES	Spain	TNS Spain	1,053	09/04/16	18/04/16	39,506,853	9.31%
FR	France	TNS Sofres	1,045	09/04/16	18/04/16	51,668,700	12.17%
HR	Croatia	HENDAL	1,057	09/04/16	18/04/16	3,625,601	0.85%
IT	Italy	TNS Italia	1,033	09/04/16	18/04/16	51,336,889	12.09%
CY	Rep. Of Cyprus	CYMAR	500	09/04/16	17/04/16	724,084	0.17%
LV	Latvia	TNS Latvia	1,032	09/04/16	18/04/16	1,731,509	0.41%
LT	Lithuania	TNS LT	998	09/04/16	18/04/16	2,535,329	0.60%
LU	Luxembourg	TNS ILReS	501	09/04/16	17/04/16	445,806	0.11%
HU	Hungary	TNS Hoffmann	1,058	09/04/16	18/04/16	8,477,933	2.00%
MT	Malta	MISCO	501	09/04/16	18/04/16	360,045	0.08%
NL	Netherlands	TNS NIPO	1,041	09/04/16	18/04/16	13,901,653	3.27%
AT	Austria	ipr Umfrageforschung	1,011	09/04/16	18/04/16	7,232,497	1.70%
PL	Poland	TNS Polska	1,015	09/04/16	18/04/16	32,736,685	7.71%
PT	Portugal	TNS Portugal	1,010	09/04/16	18/04/16	8,512,269	2.01%
RO	Romania	TNS CSOP	1,014	09/04/16	18/04/16	16,880,465	3.98%
SI	Slovenia	Mediana	994	09/04/16	18/04/16	1,760,726	0.41%
SK	Slovakia	TNS Slovakia	1,038	09/04/16	18/04/16	4,580,260	1.08%
FI	Finland	TNS Gallup Oy	1,008	09/04/16	18/04/16	4,511,446	1.06%
SE	Sweden	TNS Sifo	1,035	09/04/16	18/04/16	7,944,034	1.87%
UK	United Kingdom	TNS UK	1,330	09/04/16	18/04/16	52,104,731	12.27%
TOTAL EU28			27,969	17/10/15	26/10/15	424,491,772	100%*

* It should be noted that the total percentage shown in this table may exceed 100% due to rounding

April 2016

The basic sample design applied in all states is a multi-stage, random (probability) one. In each country, a number of sampling points was drawn with probability proportional to population size (for a total coverage of the country) and to population density.

In order to do so, the sampling points were drawn systematically from each of the "administrative regional units", after stratification by individual unit and type of area. They thus represent the whole territory of the countries surveyed according to the EUROSTAT NUTS II¹ (or equivalent) and according to the distribution of the resident population of the respective nationalities in terms of metropolitan, urban and rural areas.

In each of the selected sampling points, a starting address was drawn, at random. Further addresses (every Nth address) were selected by standard "random route" procedures, from the initial address. In each household, the respondent was drawn, at random (following the "closest birthday rule"). All interviews were conducted face-to-face in people's homes and in the appropriate national language. As far as the data capture is concerned, CAPI (*Computer Assisted Personal Interview*) was used in those countries where this technique was available.

For each country a comparison between the sample and the universe was carried out. The Universe description was derived from Eurostat population data or from national statistics offices. For all countries surveyed, a national weighting procedure, using marginal and intercellular weighting, was carried out based on this Universe description. In all countries, gender, age, region and size of locality were introduced in the iteration procedure. For international weighting (i.e. EU averages), TNS opinion & social applies the official population figures as provided by EUROSTAT or national statistic offices. The total population figures for input in this post-weighting procedure are listed here.

Readers are reminded that survey results are estimations, the accuracy of which, everything being equal, rests upon the sample size and upon the observed percentage. With samples of about 1,000 interviews, the real percentages vary within the following confidence limits:

Statistical Margins due to the sampling process

(at the 95% level of confidence)

various sample sizes are in rows

various observed results are in columns

	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	
	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	
N=50	6,0	8,3	9,9	11,1	12,0	12,7	13,2	13,6	13,8	13,9	N=50
N=500	1,9	2,6	3,1	3,5	3,8	4,0	4,2	4,3	4,4	4,4	N=500
N=1000	1,4	1,9	2,2	2,5	2,7	2,8	3,0	3,0	3,1	3,1	N=1000
N=1500	1,1	1,5	1,8	2,0	2,2	2,3	2,4	2,5	2,5	2,5	N=1500
N=2000	1,0	1,3	1,6	1,8	1,9	2,0	2,1	2,1	2,2	2,2	N=2000
N=3000	0,8	1,1	1,3	1,4	1,5	1,6	1,7	1,8	1,8	1,8	N=3000
N=4000	0,7	0,9	1,1	1,2	1,3	1,4	1,5	1,5	1,5	1,5	N=4000
N=5000	0,6	0,8	1,0	1,1	1,2	1,3	1,3	1,4	1,4	1,4	N=5000
N=6000	0,6	0,8	0,9	1,0	1,1	1,2	1,2	1,2	1,3	1,3	N=6000
N=7000	0,5	0,7	0,8	0,9	1,0	1,1	1,1	1,1	1,2	1,2	N=7000
N=7500	0,5	0,7	0,8	0,9	1,0	1,0	1,1	1,1	1,1	1,1	N=7500
N=8000	0,5	0,7	0,8	0,9	0,9	1,0	1,0	1,1	1,1	1,1	N=8000
N=9000	0,5	0,6	0,7	0,8	0,9	0,9	1,0	1,0	1,0	1,0	N=9000
N=10000	0,4	0,6	0,7	0,8	0,8	0,9	0,9	1,0	1,0	1,0	N=10000
N=11000	0,4	0,6	0,7	0,7	0,8	0,9	0,9	0,9	0,9	0,9	N=11000
N=12000	0,4	0,5	0,6	0,7	0,8	0,8	0,9	0,9	0,9	0,9	N=12000
N=13000	0,4	0,5	0,6	0,7	0,7	0,8	0,8	0,8	0,9	0,9	N=13000
N=14000	0,4	0,5	0,6	0,7	0,7	0,8	0,8	0,8	0,8	0,8	N=14000
N=15000	0,3	0,5	0,6	0,6	0,7	0,7	0,8	0,8	0,8	0,8	N=15000
	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	
	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	

¹ Figures updated in August 2015