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 postsurgical 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 for the period 2011-2016.

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;

§ 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.

KEY FINDINGS

A third of Europeans have taken antibiotics in the last year
Around a third (34%) of respondents say that they have taken antibiotics in oral form at any time in the last 12 months, very similar to the figure obtained in the last survey in 2013 (35%).

Usage varies by country: it is highest in Malta (48%) and Spain (47%), and lowest in Sweden (18%) and the Netherlands (20%).

Women are more likely than men to take antibiotics, and use is higher among those with low levels of education and those who have more difficulties paying bills.

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

Bronchitis, flu and a sore throat are the most commonly cited reasons for taking antibiotics.

Knowledge of antibiotics has remained constant since 2013

Only around a quarter (24%) of Europeans give the correct answer to four questions about antibiotics, and the European average of correct answers is 2.5 out of 4. These figures are similar to those recorded in 2013.

Most Europeans (84%) are aware that unnecessary use of antibiotics makes them become ineffective, and a similar proportion (82%) know that you should only stop taking antibiotics after taking all of the prescribed dose as directed.

However, less than half (43%) of Europeans know that antibiotics are ineffective against viruses, and just over half (56%) know that they are ineffective against colds and flu.

A third of Europeans receive information about right use of antibiotics

Only a third (33%) of respondents recall receiving information about not taking antibiotics unnecessarily in the last 12 months, the same proportion as in 2013.

This proportion ranges from 68% in Finland to 15% in Italy.

Respondents are most likely to say that they received the information from a doctor (32%), a television advertisement (27%) or the television news (26%).

Around a third (34%) of those respondents who received information about the misuse of antibiotics say that the information changed their views on antibiotics, slightly lower than in the 2013 survey (36%).
Most (67%) of the 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.

§ Europeans express interest in receiving (more) information on a range of topics, such as information on the medical conditions for which antibiotics are used, how to use antibiotics, antimicrobial resistance, and the links between the health of humans, animals and the environment.

§ Respondents see doctors (84%) as the most trustworthy source of information on antibiotics.

**Europeans support action at all levels to tackle antibiotic resistance**

§ 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 family.

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

§ More than half of Europeans (56%) agree that sick animals should be treated with antibiotics if this is the most appropriate treatment, while a third (34%) disagrees.

§ Just over a third of Europeans (37%) say that they were aware that the use of antibiotics to stimulate growth in farm animals is banned in the EU.

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**I. USE OF ANTIBIOTICS**

The first set of questions deals with respondents’ use of antibiotics, asking whether they have used them in the last year, how they obtained them, and the reason for which they took them.

**1 Antibiotics use during the last year**

A third of Europeans have taken antibiotics

Firstly, respondents were asked whether they have taken antibiotics in oral form at any time in the last 12 months. ... In Spain, the proportion of those taking antibiotics has increased by 9 percentage points since 2013. The next biggest increase is found in Italy (+7). The largest decreases are found in Romania (-9), Latvia, Denmark and the Netherlands (all -8).
2 Ways of obtaining antibiotics

-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. 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.

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)
Q84.1  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)

Q84.2  For each of the following statements, please tell me whether you think it is true or false.

**Antibiotics are effective against colds and flu (%)**

Correct Answer=False

Total base (N=27,969)
5 Overall levels of knowledge on the use of antibiotics
Overall knowledge about antibiotics has remained constant since 2013

- This section brings together the findings for each of the four individual questions testing knowledge about antibiotics. On average, only around a quarter (24%) of Europeans answered all four questions correctly, while around half (51%) gave at least three correct answers, and 94% gave at least one correct answer. The European average of correct answers is 2.5 out of 4. These figures are very similar to those obtained in 2013. The average number of correct answers varies between Member States in a manner that is broadly consistent with the pattern identified for each of the four individual questions. Finland has the highest average at 3.1, followed by the Netherlands, Sweden (both 3.0) and Luxembourg (2.9). The lowest average is observed in Italy (1.9), with low figures also found in Romania, Bulgaria, Latvia and Greece (all 2.1).