



Final Report September 30, 2016

Survey on Antimicrobial Resistance

A survey commissioned by the Federal Office of Public Health (FOPH)



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Key results

For the first time in Switzerland, a telephone representative survey of the population was carried out in order to establish people's knowledge about antibiotics, their attitudes towards them, as well as their antibiotic intake. The survey was conducted between August 24th and September 6th 2016 with a sample of 1000 respondents from all regions within Switzerland. The most important results are summarised below.

1. Antibiotic intake

- One quarter of the Swiss population has taken *antibiotics orally* in the last twelve months. The number of people taking antibiotics is particularly high in Romandy and in Ticino, amongst 15-24 year-olds and those working in nursing professions.
- About half of antibiotics users obtained the relevant medication *directly from an attending doctor* – or in the hospital. Most of the others obtained them from a pharmacy on presentation of a prescription from a doctor. It is very rare for antibiotics to be obtained outside of the medical system.
- *The reasons for the last antibiotic intake* are diverse. Overall, 16 different clinical scenarios explain about three quarters of all cases.

2. Knowledge about antibiotics

- 40% of respondents gave the correct answer to all four statements made in relation to antibiotics, another 37% gave the correct answer to three of the four statements. In other words: in this sense, about three quarters of all Swiss people have *a good knowledge of antibiotics*.
- It is most widely known that the unnecessary use of antibiotics makes them become ineffective and that antibiotics are not effective against colds and flu. The population is least certain about the statement "antibiotics kill viruses".

3. Attitudes and information about the correct intake of antibiotics

- Almost two thirds of respondents believe that they should (only) stop taking antibiotics *when they have taken all of the antibiotics prescribed as directed*.
- Almost half of all Swiss people surveyed can remember *hearing or reading information* in the last twelve months advising against taking antibiotics unnecessarily.
- By far the *most frequent sources of information* are newspapers and (specialist) periodicals, followed by the TV news and personal contacts, either family or friends.
- A quarter of those who heeded the information *changed their views* on the intake of antibiotics.
- Three quarters of those surveyed with custody of children accept a doctor's decision if the doctor, *against their expectations, does not prescribe antibiotics* to the child.

4. Desired information and reliable sources

- When respondents were asked about which antibiotics-related topics they would like to receive more information on, there was no clear favourite. Almost every second respondent is not explicitly interested in information about antibiotics.
- For those who would like to receive more information about antibiotics, the medical profession is by far the most frequently named *source of information* they would consult.

5. Level at which the problem of resistance should be tackled

- Almost half of all respondents believe that *measures* to tackle the problem of resistance to antibiotics *should be taken at all levels*.
- About half of respondents agreed that *farm animals should be given antibiotics to treat disease* if this is the most appropriate treatment method. About a third is opposed to this.

6. Antibiotic treatment in livestock

- A good half of respondents agreed that farm animals should be given antibiotics to treat disease if this is the most appropriate treatment method, a good third is opposed to this.
- There is disagreement as to whether to accept that *animals will have to remain ill, suffer or be put down* because they cannot be treated with antibiotics in cases where this is the only effective treatment method for an infection. There is roughly the same number of respondents for and against this.
- A majority of almost two thirds do not know that *using antibiotics to stimulate growth in farm animals* is banned in Switzerland and within the EU.

The detailed report contains the results in full, as well as statistically significant differences between different survey groups.

Methodology

The results of the survey referenced in this report are largely based on a questionnaire that has been used multiple times in the EU¹. The sample size of 1000 interviews (per country) was also retained. However, unlike in the EU, the interviews in Switzerland were not carried out face to face, but by computer assisted telephone interviewing from our call centres in Adligenswil and Geneva between August 24th and September 6th 2016.

For many of the questions, the possible answers were not read out. This places high demands on the interviewers as they have to quickly decide how to classify a response. All interviewers were thus briefed in detail. For most of these questions, there was also a residual category ("Other, namely:"). In this category, interviewers wrote down the answers in the form of keywords if they were unable to allocate the response to any of the available response categories. During data processing, these responses were again checked carefully and, wherever possible, assigned to an existing response option. Occasionally, additional response options were also created. A typical example is the response "Workplace/study/school" in question 8 (Sources of information), which had not been foreseen in the EU but which was named frequently in Switzerland. All remaining responses in the residual category are included in the response lists that are part of the report. It is unavoidable that occasional answers will not seem plausible. These cases demonstrate the limitations of a standardised survey, especially when answers are not read out.

The sample was taken from the language-assimilated population aged 15 years and above residing in all regions. The survey was conducted in German, French and Italian. All private households with a registered landline from AZ direct formed the address data, and a random sample was taken from this. In order to ensure that the sample was representative, a combined age/gender quota was specified in accordance with the effective population structure within the contacted households. Only about 80% of all households could be reached through that approach, corresponding to 800 interviews. The remaining 200 were conducted via random digit dialling (RDD). BIK Aschpurwis & Behrens GmbH called people on randomly generated mobile telephone numbers. Due to this dual-frame method, the data had to be weighted for the evaluation². In order to do this, a probability has to be calculated out of two potential sampling frames. The variables necessary in order to calculate these sampling probabilities are the sampling frame, the selected sample size, the number of landline or mobile telephone numbers under which a person can be contacted and – for landlines – the number of people in the household who can be contacted on the relevant number. It is assumed that mobile phones are used exclusively by one person.

A total of 21,692 addresses were used. Although the targeted people were contacted up to ten times on different weekdays (incl. Saturday) at different times of the day, 16,703 could not be reached at all. This high number is largely due to the fact that not all artificially generated mobile numbers entered were actually in service during the time in question. In 1,969 cases, the interviewers and respondents agreed to call back at a later time. However, this call was not made as the required number of respondents had already been met. Another 754 people were not interviewed because the relevant quota cells with regard to age and gender were already full. 301 contact attempts failed due to

¹ Most recently in: Antimicrobial Resistance - Special Eurobarometer 445 – Report – Fieldwork April 2016 – Publication June 2016

² For more information about the dual-frame approach, please see: Stefan Klug, Mobiler Erstkontakt in Dual-Frame-Befragungen: Der Einbezug von Mobiltelefonen zur Erhöhung der Repräsentativität, Markt- und Sozialforschung Schweiz 2013, pages 23-25.

language difficulties, and 157 due to the health of the person contacted. Consequently, for 1,000 interviews, there were a total of 1,808 refusals – a ratio that is reasonable by today’s standards.

On average, the interviews took 10 minutes. This is a reasonable amount of time for an interview without participants showing signs of fatigue. There were no unusual occurrences; the interviews were carried out within the agreed time. We are thus convinced about the validity of the results obtained, all the more so because the structure of the respondents largely corresponds to the population structure. The correspondence with regard to age and gender was ensured by means of quota requirements (see above). In addition, a comparison with current information from the Federal Statistical Office reveals a very similar structure with regard to education. In terms of employment, those in employment are slightly underrepresented in our sample and this can be explained by the fact that it was more difficult to contact them by telephone (landline in private household). The large number of effective responses to most questions and the correspondingly low number of non-responses (“No answer” and “Don’t know”) is a further indication of the good quality of the survey and suggests that virtually all questions could be answered well.

Table A: Education – comparison between population and sample

Level of education	Population	Sample
Obligatory	11.8%	10.9%
Secondary	46.5%	49.4%
Tertiary	41.7%	38.2%
Other /No answer	-	1.7%

Table B: Employment – comparison between population and sample

Employment	Population	Sample
Employed	66.2%	60.4%
Unemployed	2.9%	2.7%
Inactive	30.8%	36.9%

As with any random sample survey, here, too, reference must be made to the margin of error. In this case, the margin of error is +/-3.1% with 95% certainty. This means that, in 95% of all cases, if a different sample were to be taken from the total population residing in Switzerland, the results of all questions would not deviate from those shown here by more than 3.1%.³

We can confirm that the survey was carried out in accordance with the standards of the Verband Schweizer Markt- und Sozialforscher.

Demo SCOPE AG



Werner Reimann
Head of Social Research

³ Practical example: on page 8 it was shown that 25% (“one quarter”) of people had taken antibiotics in oral form in the last twelve months. If a different 1,000 people in Switzerland had been asked, in 95 of 100 cases, the result would be between 21.9% and 28.1%. Only in 5 cases would the difference be greater than the result shown here.

Detailed report

1. Antibiotic intake

A quarter of the Swiss population has taken antibiotics orally in the last twelve months. The number of people taking antibiotics is particularly high in Romandy and in Ticino (Chart 1), amongst 15-24 year-olds and those working in nursing professions (Table 1).

Chart 1: Antibiotic intake according to region

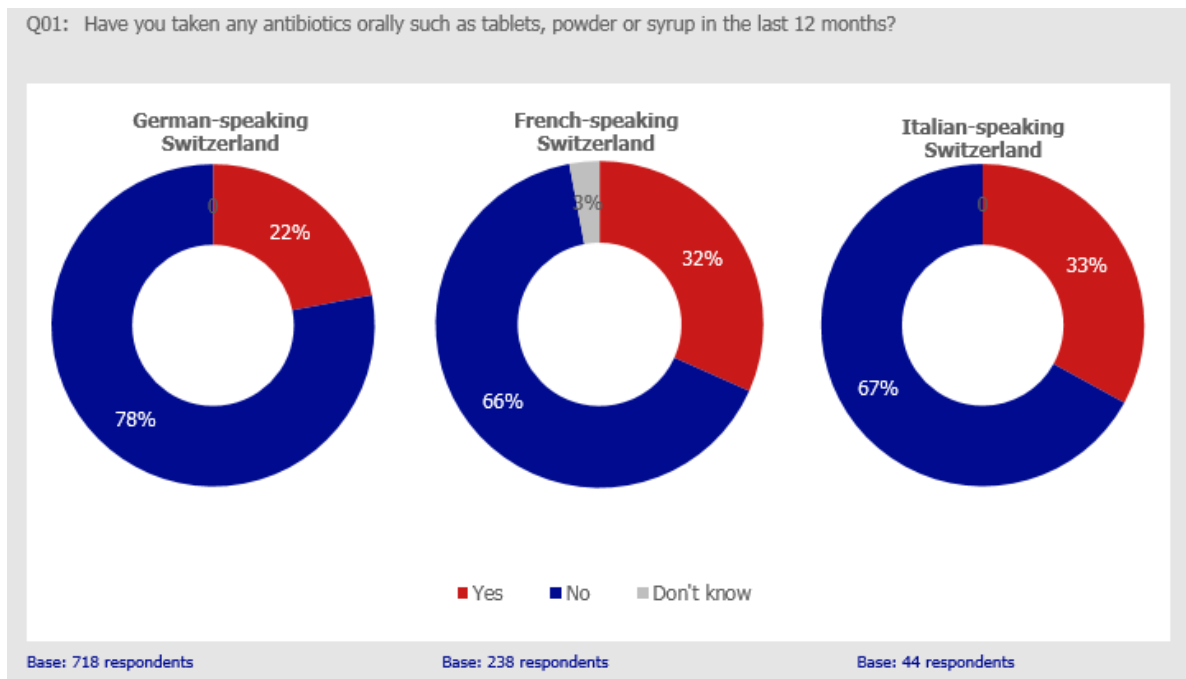


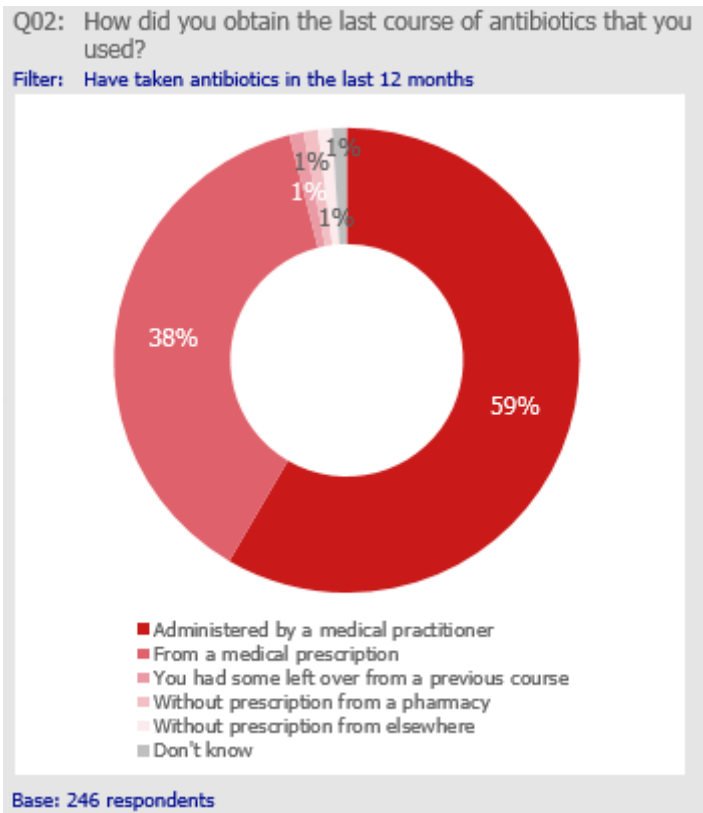
Table 1: Antibiotic intake according to age and occupation⁴

	Age					Occupation			
	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years	Trades	Nursing profession	Office work / service sector	Other
Total (wt.)	142	245	276	141	196	100	71	289	143
Yes	32%	26%	20%	26%	22%	18%	36%	23%	22%
No	67%	74%	78%	73%	78%	82%	64%	76%	75%
Don't know	1%	-%	2%	1%	-%	-%	-%	*%	3%

A good half of antibiotics users obtained the relevant medication directly from an attending doctor, if necessary, also in the hospital (Chart 2, next page). Most of the others obtained the medication from a pharmacy with a prescription. Other sources of supply, namely medication left over from a previous course, medication obtained from a pharmacy without prescription, or medication obtained from other sources without prescription (in each case, 1%), are exceptions.

⁴ Results that present a statistically significant positive deviation from those of the countergroups are marked in bold in the tables.

Chart 2: Source of procurement of antibiotics



The differences according to region are noticeable. Whilst, in German-speaking Switzerland, medication is administered via the medical profession in three quarters of all cases, in Romandy, most medication is obtained from a pharmacy with a prescription⁵.

Table 2: Procurement of antibiotics according to region

	Region		
	German	French	Italian
Total (wt.)	156	76	14
From a medical prescription	23%	59%	87%
Administered by a medical practitioner	75%	37%	3%
You had some left over from a previous course	1%	-%	-%
Without prescription from a pharmacy	1%	1%	-%
Without prescription from elsewhere	-%	-%	10%
Don't know	-%	2%	-%

⁵ For Ticino, it is not possible to draw a reliable conclusion due to the small sample size.

There are many reasons for the last antibiotic intake. Particularly frequent reasons are urinary tract infections (bladder infections), almost exclusively amongst women. The second most frequent reason is sore throats, angina and scarlet fever, mainly amongst 25-39 year-olds. The third most frequent reason is skin or wound infections, which are significantly more frequent amongst men than women. Overall, 16 different clinical scenarios explain about three quarters of all cases. 35 other infrequent reasons, ranging from asthma and cancer to diverticulum and tick bites, make up the remaining quarter.

Chart 3: Reasons for last antibiotic intake

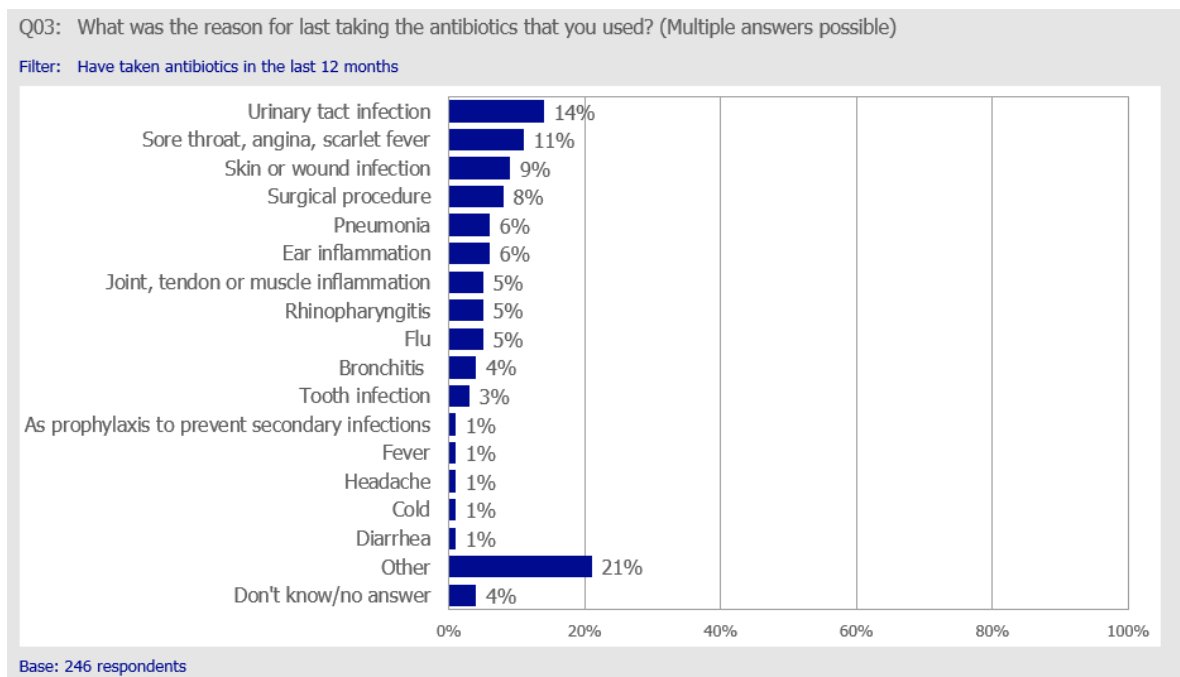


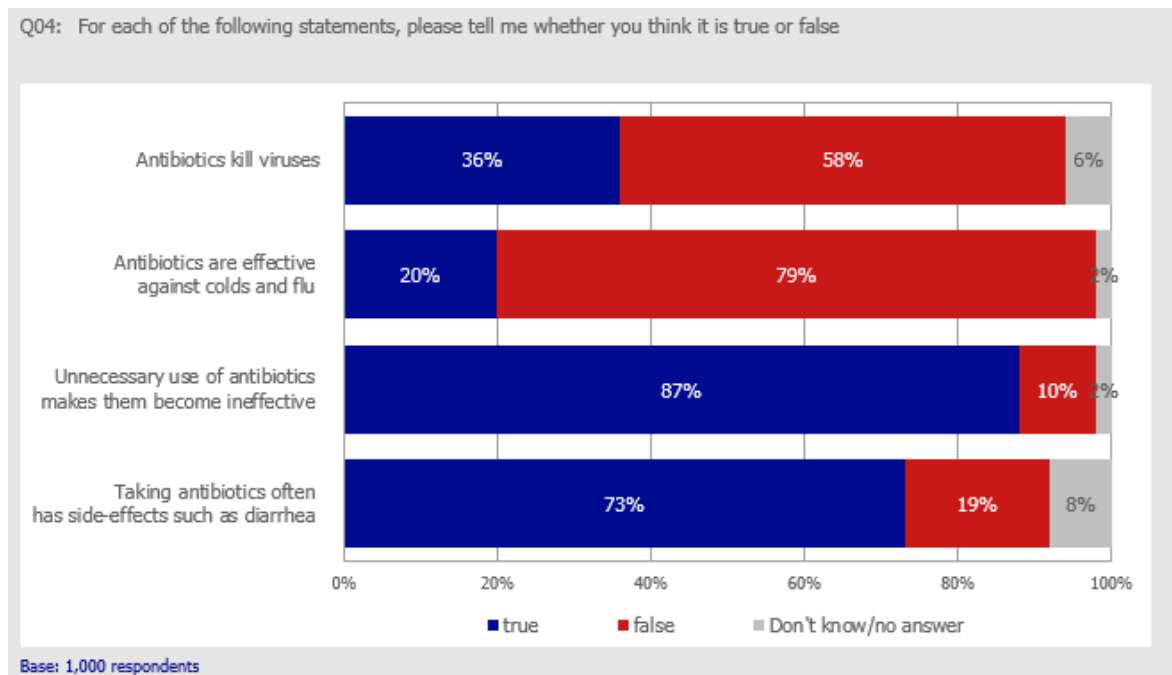
Table 3: Most important reasons for last antibiotic intake according to gender, age and knowledge

	Gender		Age					Knowledge (Index from Q04)		
	Male	Frau	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years	4 correct	3 correct	<3 correct
Total (wt.)	114	132	45	64	56	37	43	79	79	51
Urinary tract infection	2%	25%	22%	9%	20%	9%	13%	20%	19%	8%
Sore throat, angina, scarlet fever	12%	9%	9%	22%	9%	3%	4%	14%	13%	5%
Skin or wound infection	14%	4%	21%	5%	9%	6%	4%	8%	9%	12%
Surgical procedure	8%	8%	7%	2%	2%	4%	27%	9%	6%	10%
Pneumonia	6%	5%	7%	3%	7%	7%	8%	8%	2%	2%
Ear inflammation	7%	4%	4%	14%	2%	4%	2%	2%	5%	13%
Joint, tendon or muscle inflammation	8%	3%	7%	5%	10%	2%	-%	8%	-%	6%
Rhinopharyngitis	4%	5%	4%	11%	3%	2%	-%	3%	4%	-%
Flu	*%	8%	2%	-%	9%	12%	2%	-%	7%	10%
Bronchitis	2%	6%	2%	2%	2%	7%	7%	3%	4%	5%
Tooth infection	3%	3%	4%	1%	3%	4%	1%	2%	1%	6%

2. Knowledge about antibiotics

All four statements read out about antibiotics are interpreted correctly by a clear majority of respondents. It is most widely known that the unnecessary use of antibiotics makes them become ineffective and that antibiotics are not effective against colds and flu. The population is least certain about the statement "antibiotics kill viruses".

Chart 4: Statements on antibiotics



With three of the four statements, women are much more knowledgeable than men. The same applies for the age group 25-64⁶ years. In three of the four statements, education also has a significant, positive influence on knowledge. And, finally, those who can remember having read or heard information in the last twelve months advising against the unnecessary intake of antibiotics also gave the correct response to all four questions much more frequently.

An index can be created from the four statements. It measures how many correct answers someone has given. 40% of respondents gave the correct response to all four statements, another 37% to three of the four statements. In other words: a good three quarters of all Swiss people have a good knowledge about antibiotics. The analysis of the index also shows correlations with the above-mentioned differences between individual survey groups (cf. Table 4 on the next page). This means that knowledge is particularly great amongst women aged 40 and above, amongst well-educated people, and amongst people who are well informed about antibiotics (remember information from the last 12 months advising against the unnecessary intake of antibiotics).

⁶ In the fourth case, it is the 25-39 year-olds.

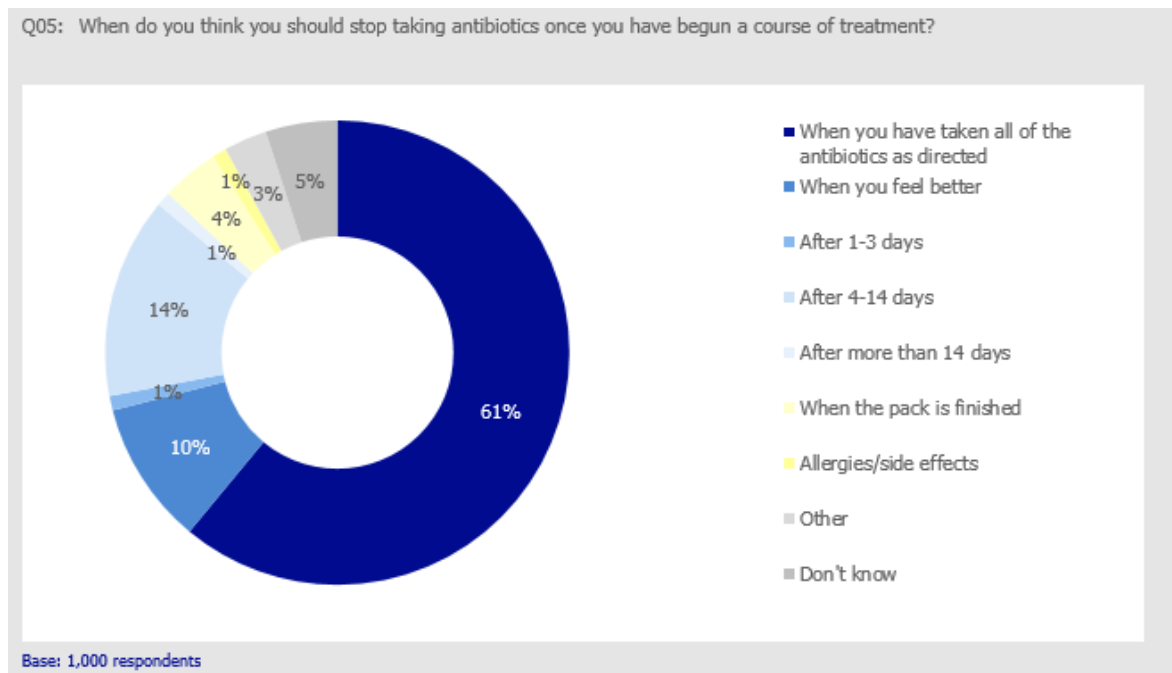
Table 4: Knowledge according to gender, age, education and awareness

	Gender		Age					Education			Awareness	
	Male	Female	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years	Obliga-tory	Secon-dary	Terti-ary	Yes	No
Total (wt.)	420	427	126	205	243	122	152	90	414	332	392	446
4 correct (4)	33%	47%	27%	36%	50%	40%	41%	19%	37%	51%	47%	33%
3 correct (3)	35%	39%	41%	42%	33%	37%	35%	38%	41%	33%	37%	38%
2 correct (2)	22%	11%	18%	17%	13%	18%	20%	28%	18%	12%	15%	18%
1 correct (1)	8%	2%	10%	5%	3%	4%	4%	11%	4%	4%	1%	8%
None correct	1%	1%	4%	-%	2%	-%	1%	6%	1%	*%	*%	2%

3. Attitudes and information about the correct intake of antibiotics

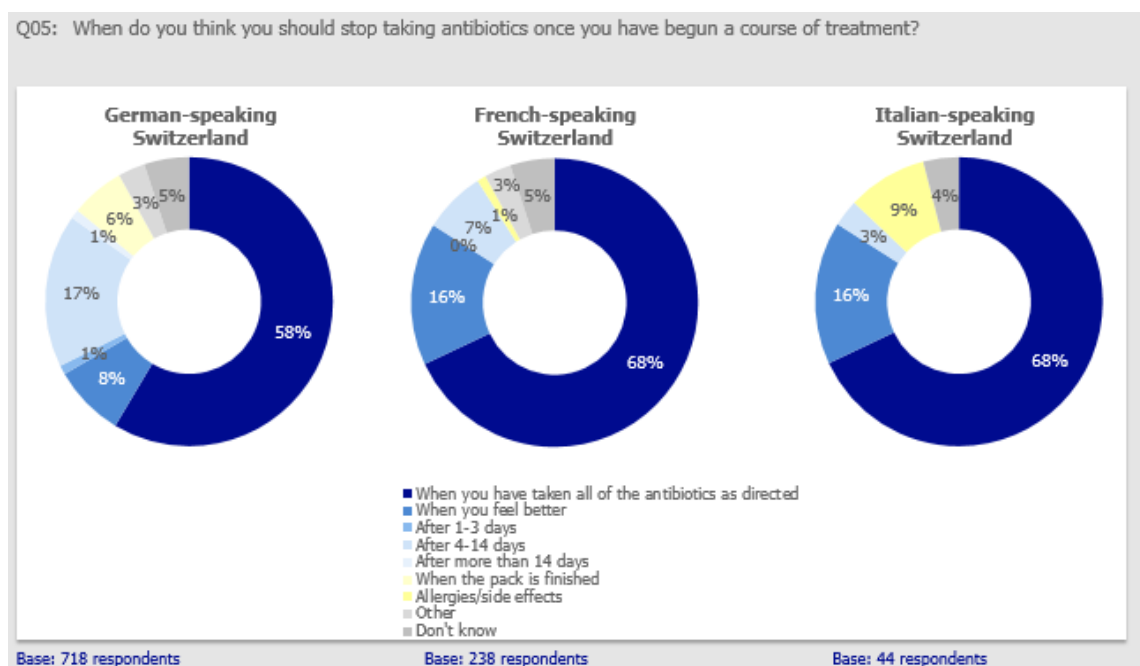
Almost two thirds of respondents believe that they should (only) stop taking antibiotics when they have taken all of the antibiotics prescribed as directed. However, every tenth respondent believes that they can stop taking the antibiotics as soon as they feel better. Another 16% answered this open question in terms of a specific number of days, frequently between four and 14 days.

Chart 5: The right time to stop taking a course of antibiotics



The answer that you should only stop taking antibiotics when all of the antibiotics have been taken as directed is given more frequently in Romandy and Ticino than in German-speaking Switzerland.

Chart 6: The right time according to region



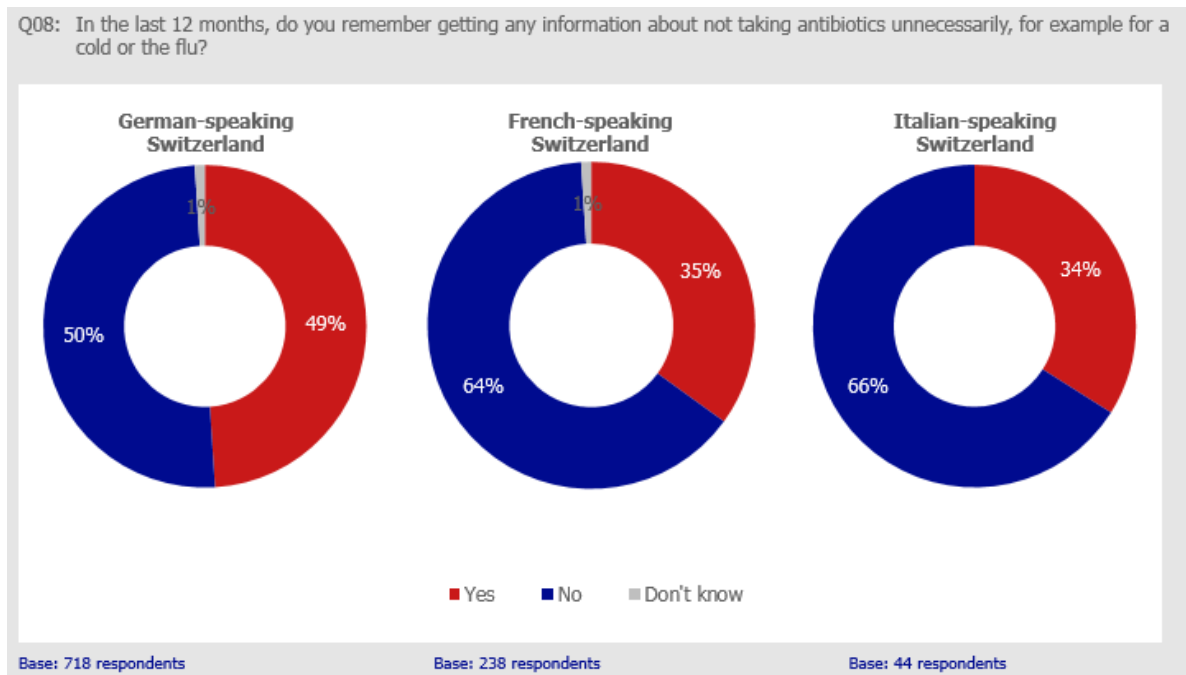
Women, people aged 25 and above, and more educated people gave this answer significantly more frequently than the respective counterpart groups, as did people who remember information about antibiotics and those who have a good knowledge of antibiotics.

Table 5: The right time in accordance with gender, age, education, awareness and knowledge (extract)

	Gender		Age					Education			Awareness		Knowledge (Index from Q04)		
	Male	Female	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years	Obligatory	Secondary	Tertiary	Yes	No	4 correct	3 correct	<3 correct
Total (wt.)	490	510	142	245	276	141	196	109	494	381	451	539	340	315	192
When you have taken all of the antibiotics as directed	54%	67%	47%	61%	69%	62%	58%	47%	60%	68%	65%	56%	72%	60%	41%
4-14 days	14%	15%	8%	16%	11%	15%	20%	15%	17%	11%	15%	14%	12%	15%	20%
When you feel better	15%	6%	22%	9%	9%	8%	7%	21%	9%	9%	8%	13%	5%	9%	23%

Almost half of all Swiss people surveyed can remember hearing or reading information in the last twelve months advising against taking antibiotics unnecessarily. This number is much higher in German-speaking Switzerland than in the other two regions.

Chart 7: Remembering information according to region



In addition, a particularly large number of people in the following survey groups can remember information from the last twelve months:

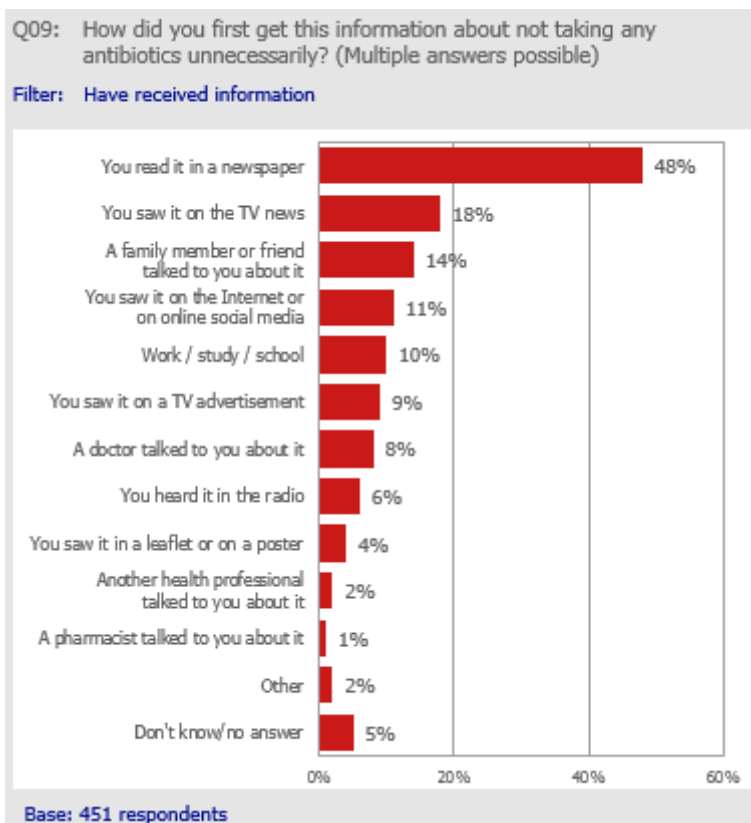
- Women
- 40-54 year-olds and people aged 65 and above
- People with secondary or tertiary education
- People with great specialist knowledge in accordance with question 4
- Rural population

Table 6: Remembering information according to gender, age, education, knowledge and place of residence

	Gender		Age					Education			Knowledge (Index from Q04)			Place of residence	
	Male	Female	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years	Obligatory	Secondary	Tertiary	4 correct	3 correct	<3 correct	City	Country
Total (wt.)	490	510	142	245	276	141	196	109	494	381	340	315	192	758	242
Yes	42%	49%	37%	36%	50%	45%	55%	29%	48%	46%	54%	46%	33%	43%	51%
No	58%	50%	63%	63%	49%	53%	43%	70%	51%	52%	44%	54%	66%	56%	47%
Don't know	1%	1%	-%	*%	1%	1%	2%	1%	*%	2%	2%	-%	1%	1%	1%

By far the most frequent source of information with regard to the (unnecessary) intake of antibiotics are newspapers and (specialist) periodicals, followed by the TV news and personal contacts, either family or friends.

Chart 8: Remembering information about antibiotics



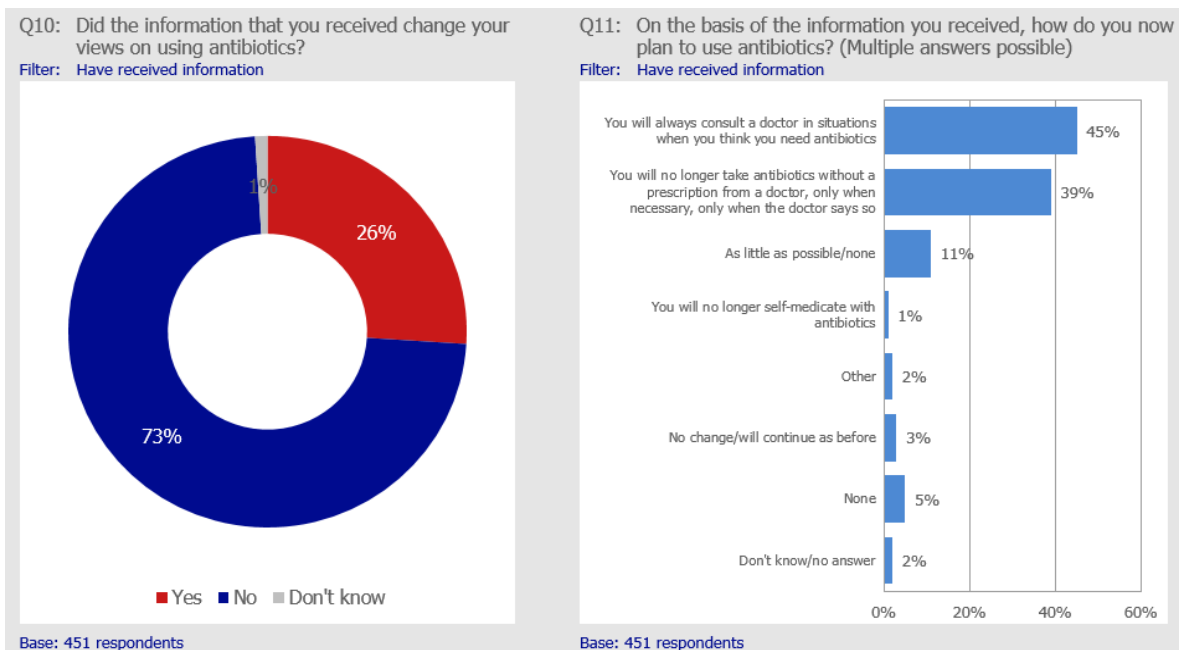
For people aged 50 and above, newspapers and periodicals are the most frequent source of information. However, for very young people, their own social circle (family, friends, school/workplace) is particularly important.

Table 7: Remembering information on antibiotics according to age

	Age				
	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years
Total (wt.)	52	89	138	64	108
Newspaper	29%	38%	50%	46%	61%
TV news	1%	20%	21%	24%	19%
Family member or friend	47%	21%	5%	11%	4%
Internet / online social media	2%	29%	11%	4%	5%
Work / study / school	37%	4%	9%	6%	5%
TV advertisement	7%	6%	7%	14%	10%
Doctor	8%	4%	7%	16%	8%
Radio	1%	3%	4%	14%	8%
Leaflet/poster	2%	3%	4%	2%	7%
Another health professional	-%	-%	4%	3%	1%
Pharmacist	1%	1%	*%	3%	1%
Other	-%	4%	3%	1%	*%
Don't know	-%	6%	5%	6%	5%
No answer	-%	-%	-%	-%	1%

About a quarter of those who heeded the information changed their views on the intake of antibiotics, primarily to the effect that, in future, they will always consult a doctor when they think that they need antibiotics. Furthermore, they no longer wish to take antibiotics without a prescription from a doctor.

Chart 9: Change in view after receiving information and current approach



Young people up to the age of 24 are particularly receptive to new ideas. More than half of them changed their behaviour as a result of this. The same is true for people with relatively little previous knowledge.

Table 8: Change in views about intake of antibiotics according to age and previous knowledge

	Age					Knowledge (Index from Q04)		
	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years	4 correct	3 correct	<3 correct
Total (wt.)	52	89	138	64	108	184	144	64
Yes	54%	8%	25%	28%	29%	20%	38%	35%
No	45%	91%	74%	71%	71%	80%	61%	65%
Don't know	1%	1%	1%	-%	*%	-%	1%	*%
No answer	-%	-%	-%	1%	-%	*%	-%	-%

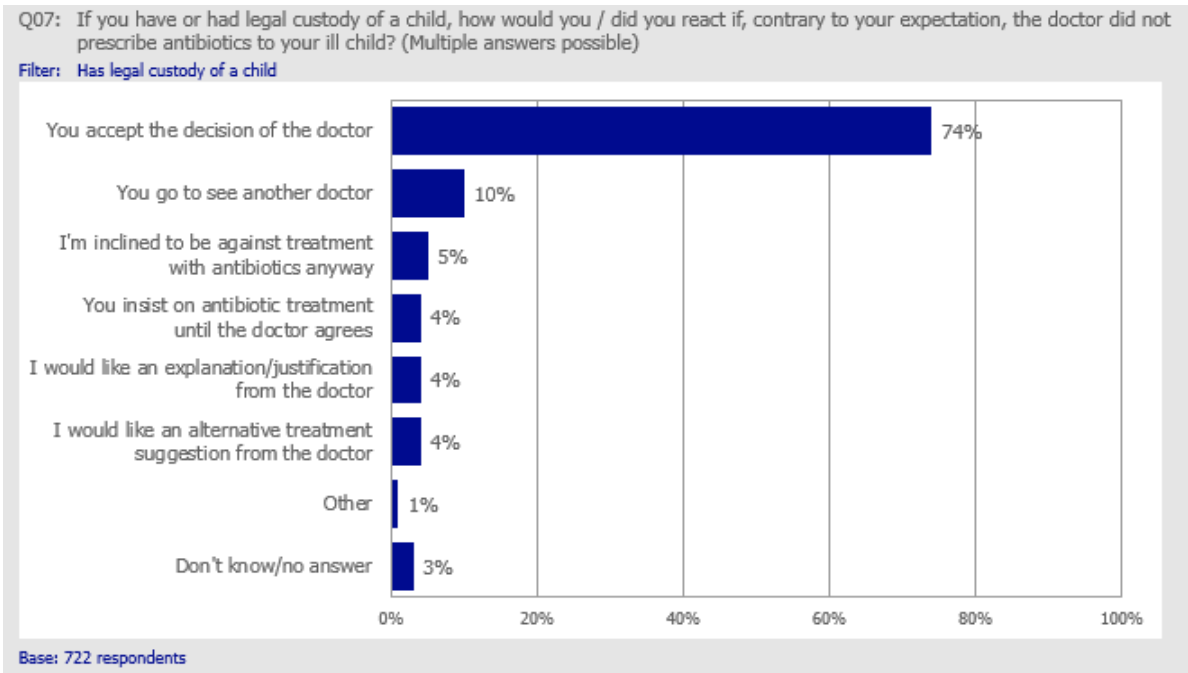
The differences between current attitudes according to age and level of knowledge are also interesting. Very young people who have changed their opinions on the basis of information received wish to consult a doctor much more frequently than all others in situations when they think they need antibiotics. However, with particular frequency, people aged between 55 and 64 will no longer take antibiotics without a prescription from a doctor, and then only when absolutely necessary. With similar frequency, respondents with a good level of knowledge, as well as those with little knowledge, will, in future, always consult a medical practice. However, those with a lot of knowledge say with much greater frequency that they no longer wish to take antibiotics without a prescription from a doctor, and then only when absolutely necessary. So their threshold is much higher.

Table 9: Current attitude according to age and knowledge

	Age					Knowledge (Index from Q04)		
	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years	4 correct	3 correct	<3 correct
Total (wt.)	52	89	138	64	108	184	144	64
You will always consult a doctor in situations when you think you need antibiotics	55%	49%	39%	43%	43%	51%	43%	46%
You will no longer take antibiotics without a prescription from a doctor, only when necessary, only when the doctor says so	34%	33%	40%	49%	38%	39%	44%	24%
As little as possible/none	6%	13%	14%	6%	13%	8%	11%	21%
You will no longer self-medicate with antibiotics	1%	2%	*%	1%	*%	1%	1%	1%
You will no longer keep left over antibiotics for next time you are ill	1%	1%	-%	-%	-%	*%	1%	-%
You will give left-over antibiotics to your relatives or friends when they are ill	3%	-%	-%	-%	-%	-%	1%	-%
You will use antibiotics against the flu	1%	-%	-%	*%	-%	*%	1%	-%
Other	3%	1%	3%	2%	1%	2%	1%	4%
No change/will continue as before	-%	2%	6%	-%	2%	4%	1%	3%
None	5%	5%	6%	2%	5%	5%	3%	-%
Don't know	6%	-%	1%	2%	2%	-%	3%	2%
No answer	-%	-%	*%	-%	3%	*%	-%	2%

722 of the 1000 respondents have had or still have legal custody of a child. How would they react or how did they react if, contrary to their expectations, the doctor did/does not prescribe antibiotics to the child? Three quarters accept the decision; every tenth respondent would consult another doctor.

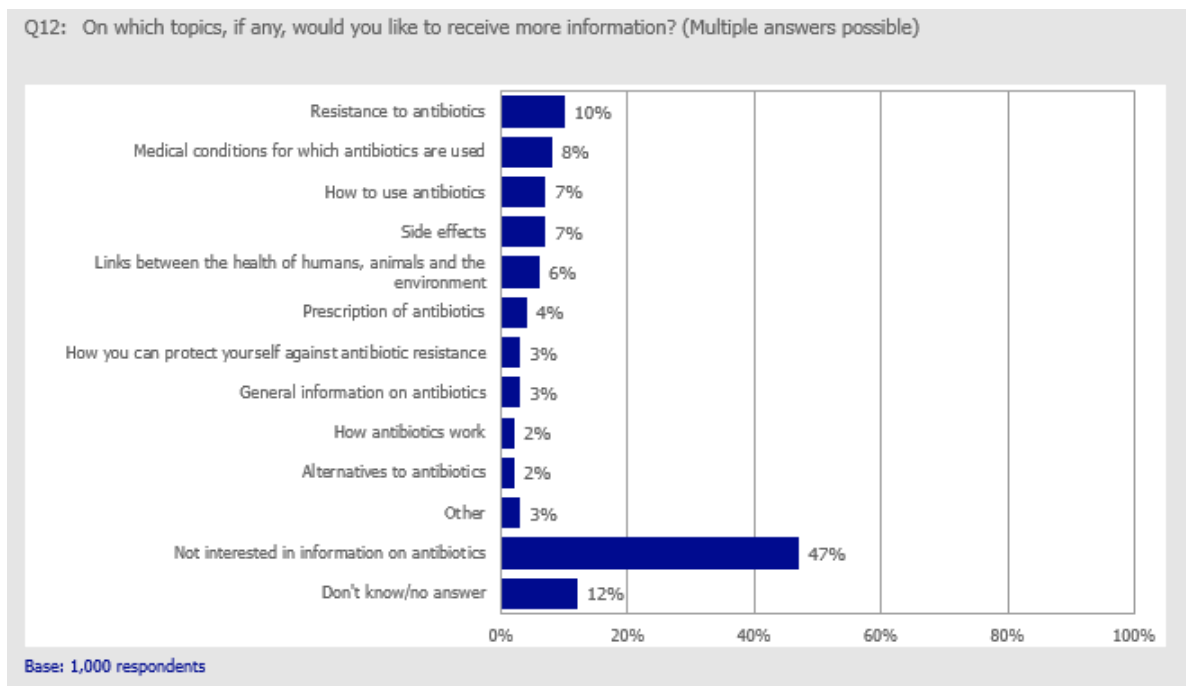
Chart 10: Reaction when doctor does not prescribe antibiotics to the child



4. Desired information and reliable sources

When respondents were asked about which antibiotics-related topics they would like to receive more information, there was no clear favourite. The most frequent response was the problem of resistance, however, medical conditions related to the use of antibiotics, correct usage, side effects and links between the health of humans, animals and the environment were also named comparatively frequently. Almost every second respondent is not explicitly interested in information about antibiotics.

Chart 11: Topics on which respondents would like to receive more information



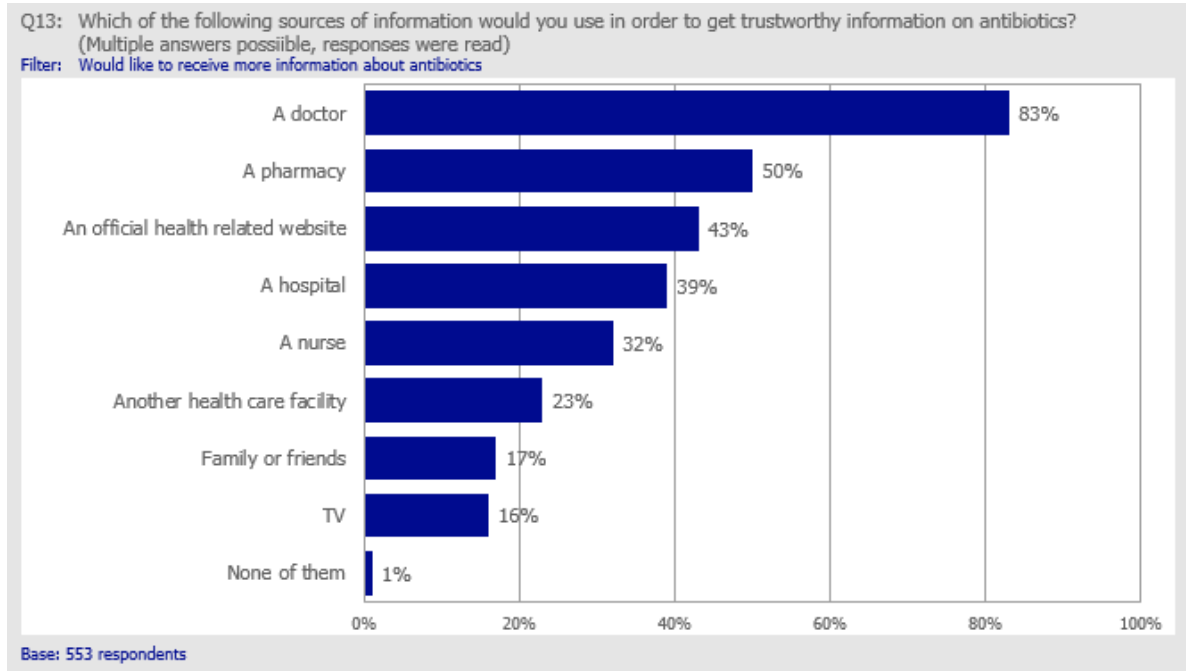
Respondents in German-speaking Switzerland, men, people aged 55 and above, people without Internet access, as well as people who remember information from the last twelve months, have particularly little interest in information.

Table 10: No interest in information about antibiotics according to region, age and Internet use

	Age					Region			Internet use		
	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years	German	French	Italian	Yes, (almost) daily	Yes, less frequently	No
Total (wt.)	142	245	276	141	196	718	238	44	750	151	99
Not interested in information on antibiotics	39%	42%	45%	53%	59%	50%	42%	41%	46%	40%	68%

For those who would like to receive more information about antibiotics, the medical profession is by far the most frequently named source of information they would consult. Pharmacies, official health websites and hospitals also play a significant role (cf. Chart 12 on the next page).

Chart 12: Sources of information for topics on which respondents would like to receive more information



Pharmacies are particularly significant in Romandy and even more so in Ticino. A similar situation is observed amongst very young people up to the age of 24, who often name nurses as a possible source of information. Official health websites are named less and less frequently with increasing age. Of course, there is also a close link between websites and Internet use.

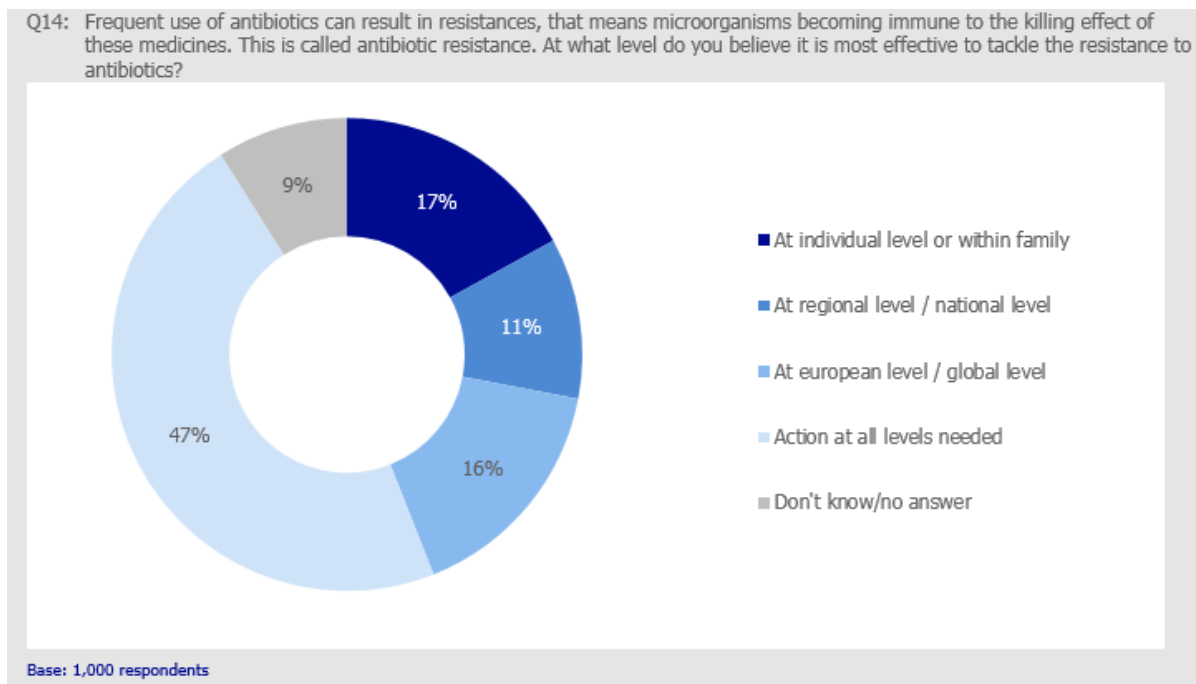
Table 11: Sources of information for topics on which respondents would like to receive more information according to region, age and Internet use

	Region			Age					Internet use		
	German	French	Italian	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years	Yes, (almost) daily	Yes, less frequently	No
Total (wt.)	373	151	28	89	144	159	74	87	424	95	34
A doctor	82%	83%	88%	79%	82%	81%	88%	86%	83%	87%	70%
A pharmacy	45%	55%	72%	64%	44%	49%	49%	46%	48%	54%	49%
An official health related website	42%	42%	51%	52%	43%	50%	38%	21%	49%	25%	14%
A hospital	33%	51%	50%	48%	36%	39%	29%	40%	39%	43%	21%
A nurse	30%	39%	22%	43%	31%	33%	26%	25%	34%	28%	20%
Another health care facility	23%	21%	24%	24%	24%	26%	10%	23%	24%	19%	14%
Family or friends	18%	15%	8%	19%	17%	14%	26%	11%	18%	11%	14%
TV	13%	23%	21%	14%	19%	13%	15%	20%	17%	14%	13%
None of them	1%	2%	-0%	-0%	1%	2%	2%	1%	1%	-0%	2%
Don't know	*0%	-0%	1%	-0%	1%	-0%	-0%	1%	-0%	1%	2%

5. Level at which the problem of resistance should be tackled

Almost half of all respondents believe that measures to tackle the problem of resistance to antibiotics should be taken at all levels. Similarly small minorities focus on individual, regional and either national or international level.⁷

Chart 13: Level at which the problem of resistance should be tackled



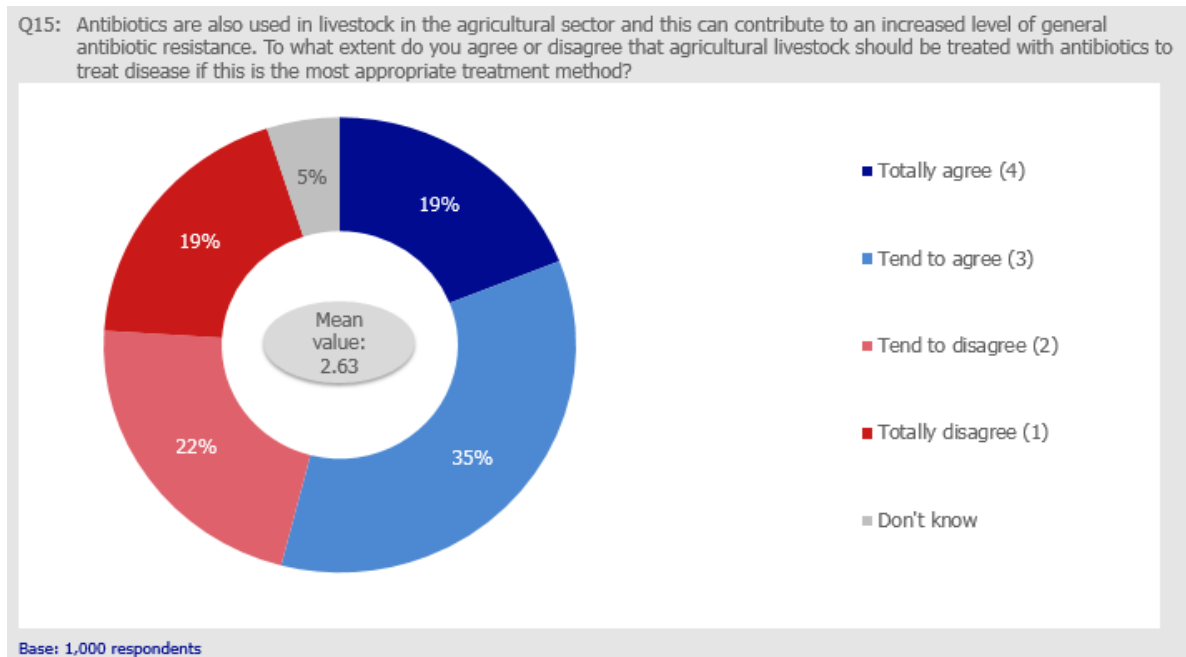
The fact that almost every tenth respondent did not provide an answer shows that the question was not explained in layman's terms. For people with just obligatory education, this figure was as high as 17%.

⁷ The responses were not read out

6. Antibiotic treatment in livestock

Opinions are controversial when it comes to antibiotic treatment in livestock. Although a good half of respondents agreed that farm animals should be given antibiotics to treat disease if this is the most appropriate treatment method, a good third is opposed to this.

Chart 14: Antibiotic treatment in livestock



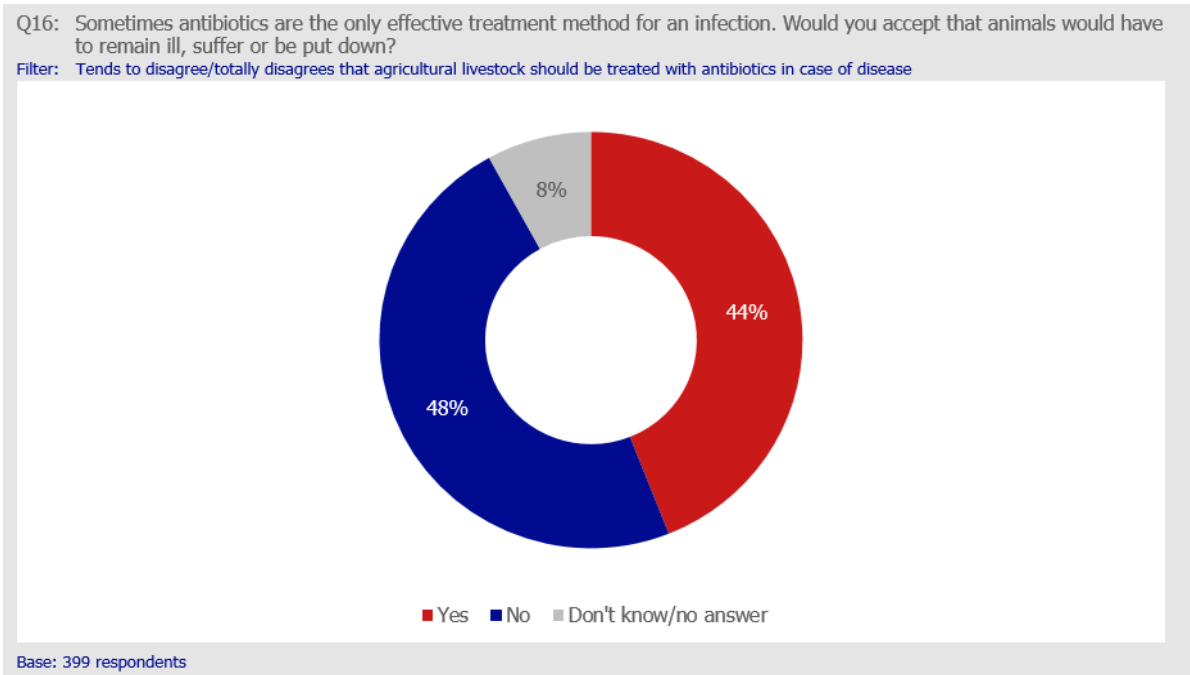
Opposition is particularly strong amongst the youngest respondents, as well as the oldest. The absolute majority of the latter are against antibiotic treatment in livestock.

Table 12: Opposition to antibiotic treatment in livestock according to age

	Age				
	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years
Total (wt.)	142	245	276	141	196
Totally agree	14%	20%	23%	22%	14%
Tend to agree	39%	40%	40%	44%	30%
Tend to disagree	29%	28%	21%	16%	28%
Totally disagree	18%	10%	15%	13%	23%
Don't know	-%	3%	2%	5%	4%
No answer	-%	-%	*%	*%	1%

There is disagreement as to whether to accept that animals will have to remain ill, suffer or be put down because they cannot be treated with antibiotics in cases where this is the only effective treatment method for an infection. Roughly the same number of respondents are for this as against. The comparatively high number of people, namely 8%, who did not answer the question indicates that some respondents did not find it easy to reach a decision (Chart 15 on the next page).

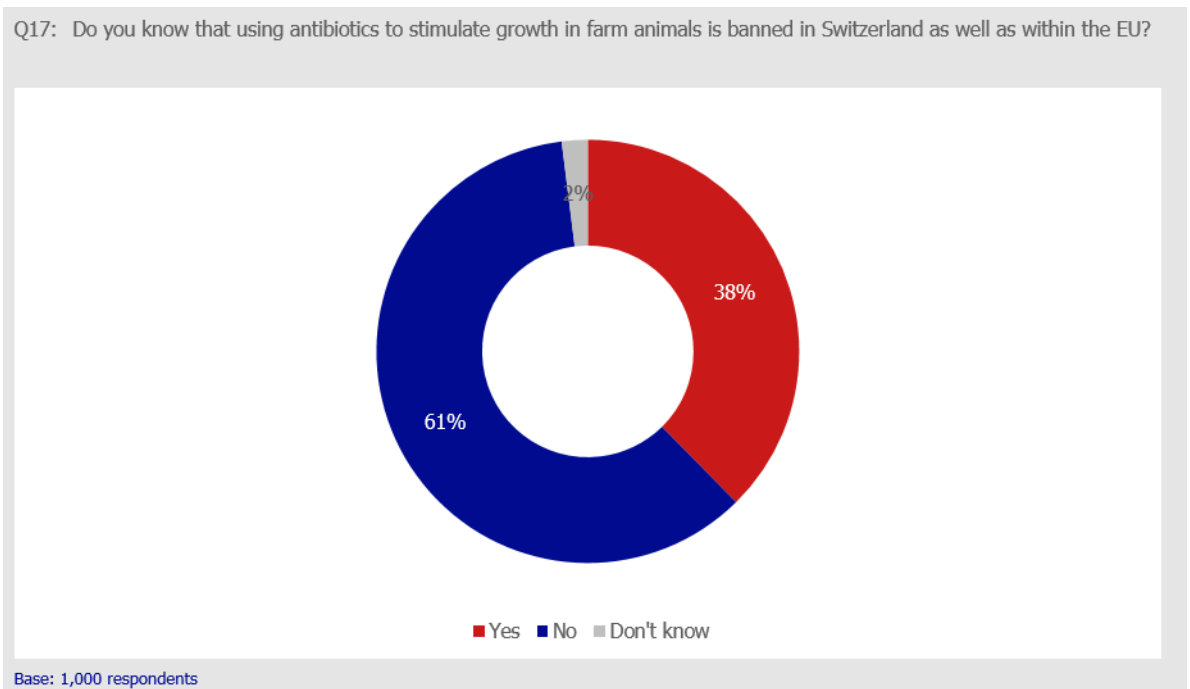
Chart 15: Allowing animals to suffer/die



The difference between the sexes is particularly great: whilst a majority of 59% of men said yes, just as many women said no.

Clearly not a lot is known about the use of antibiotics in animals. A majority of 61% did not know that using antibiotics to stimulate growth in farm animals is banned both in Switzerland and within the EU.

Chart 16: Antibiotics as a growth stimulant



This ban is not widely known in German-speaking Switzerland, amongst people younger than 40, amongst those working in caring professions and amongst those who have little knowledge about antibiotics (question 4) or who cannot remember information about antibiotics.

Table 13: Knowledge about the ban on using antibiotics to stimulate growth according to age, region, occupation, awareness and knowledge

	Age					Region			Occupation			
	15 - 24 years	25 - 39 years	40 - 54 years	55 - 64 years	65+ years	German	French	Italian	Trades	Nursing profession	Office work / service sector	Other
Total (wt.)	142	245	276	141	196	718	238	44	100	71	289	143
Yes	28%	32%	44%	45%	38%	35%	43%	62%	39%	30%	40%	48%
No	72%	68%	55%	54%	57%	64%	54%	33%	58%	69%	60%	52%
Don't know	1%	1%	1%	1%	4%	1%	3%	6%	3%	1%	*%	-%

	Awareness		Knowledge (Index from Q04)		
	Yes	No	4 correct	3 correcte	<3 correct
Total (wt.)	451	539	340	315	192
Yes	44%	33%	42%	41%	29%
No	56%	65%	58%	57%	70%
Don't know	1%	2%	*%	2%	1%

Appendix

Questionnaire

Q1 Have you taken any antibiotics orally such as tablets, powder or syrup in the last 12 months?

- Yes
- No
- Don't know
- No answer

Q2 How did you obtain the last course of antibiotics that you used?

PROG: IF Q1 = YES; SINGLE
INT: READ OUT – 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 know
- No answer

Q3 What was the reason for last taking the antibiotics that you used

FILTER: IF Q1 = YES
INT: MULTIPLE ANSWERS POSSIBLE

- 1 Pneumonia
- 2 Bronchitis
- 3 Rhinopharyngitis
- 4 Flu
- 5 Cold
- 6 Sore throat n
- 7 Fever
- 8 Headache
- 9 Diarrhea
- 10 Urinary tract infection
- 11 Skin or wound infection
- Other
- Don't know
- No answer

Q4 For each of the following statements, please tell me whether you think it is true or false.

PROG: ALL, RANDOM

True
False
Don't know
No answer

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

Q5 When do you think you should stop taking antibiotics once you have begun a course of treatment?

PROG: ALL, SINGLE

1 When you feel better
2 When you have taken all of the antibiotics as directed
Other
Don't know
No answer

Q7 If you have or had legal custody of a child, how would you / did you react if, contrary to your expectation, the doctor did not prescribe antibiotics to your ill child?

PROG: IF Q6 = JA

INT: MULTIPLE ANSWERS POSSIBLE

1 You insist on antibiotic treatment until the doctor agrees
2 You go to see another doctor
3 They try to get antibiotic in a pharmacy
4 You try to obtain an antibiotic from other sources
5 You give the remaining antibiotics from a previous course to the child
6 You accept the decision of the doctor
Other
Don't know
No answer

Q8 In the last 12 months, do you remember getting any information about not taking antibiotics unnecessarily, for example for a cold or the flu?

PROG: ALL, SINGLE

Yes
No
Don't know
No answer

Q9 How did you first get this information about not taking any antibiotics unnecessarily?

PROG: IF Q8 = YES

INT: MULTIPLE ANSWERS POSSIBLE

- 1 A doctor talked to you about it
 - 2 You saw it on a TV advertisement
 - 3 You saw it on the TV news
 - 4 You read it in a newspaper
 - 5 You saw it on the Internet or on online social media
 - 6 A family member or friend talked to you about it"
 - 7 You heard it in the radio
 - 8 A pharmacist talked to you about it
 - 9 You saw it in a leaflet or on a poster
 - 10 Another health professional talked to you about it
- Other
Don't know
No answer

Q10 Did the information that you received change your views on using antibiotics?

PROG: IF Q8 = YES, SINGLE

- Yes
No
Don't know
No answer

Q11 On the basis of the information you received, how do you now plan to use antibiotics?

PROG: IF Q8 = YES

INT: MULTIPLE ANSWERS POSSIBLE

- 1 You will always consult a doctor in situations when you think you need antibiotics
 - 2 You will no longer self-medicate with antibiotics
 - 3 You will no longer take antibiotics without a prescription from a doctor, only when necessary, only when the doctor says so
 - 4 You will no longer keep left over antibiotics for next time you are ill
 - 5 You will use antibiotics against the flu
 - 6 You will give left-over antibiotics to your relatives or friends when they are ill
- Other
No change/will continue as before
Don't know
No answer

Q12 On which topics, if any, would you like to receive more information?

PROG: ALL

INT: MULTIPLE ANSWERS POSSIBLE

- 1 Medical conditions for which antibiotics are used
- 2 Resistance to antibiotics
- 3 How you can protect yourself against antibiotic resistance
- 4 Links between the health of humans, animals and the environment
- 5 How to use antibiotics
- 6 Prescription of antibiotics
- Other
- Not interested in information on antibiotics
- Don't know
- No answer

Q13 Which of the following sources of information would you use in order to get trustworthy information on antibiotics?

PROG: ALL, EXCEPT «NOT INTERESTED» IN Q12, RANDOM

INT: READ OUT

- A doctor
- A pharmacy
- A hospital
- An official health related website
- A nurse
- Another health care facility
- TV
- Family or friends
- None
- Don't know
- No answer

Q14 Frequent use of antibiotics can result in resistances, that means microorganisms becoming immune to the killing effect of these medicines. This is called antibiotic resistance. At what level do you believe it is most effective to tackle the resistance to antibiotics?

PROG: ALL, SINGLE

- At individual level or within family
- At regional level / national level
- At european level / global level
- Action at all levels needed
- Don't know
- No answer

Q15 Antibiotics are also used in livestock in the agricultural sector and this can contribute to an increased level of general antibiotic resistance. To what extent do you agree or disagree that agricultural livestock should be treated with antibiotics to treat disease if this is the most appropriate treatment method?

PROG: ALL, SINGLE

Totally agree
Tend to agree
Tend to disagree
Totally disagree
Don't know
No answer

Q16 Sometimes antibiotics are the only effective treatment method for an infection. Would you accept that animals would have to remain ill, suffer or be put down.

PROG: IF Q15 = TEND TO DISAGREE/TOTALLY DISAGREE; SINGLE

Yes
No
Don't know
No answer

Q17 Do you know that using antibiotics to stimulate growth in farm animals is banned in Switzerland as well as within the EU?

PROG: ALL, SINGLE

Yes
No
Don't know
No answer