Report on the Telephone Opinion Survey on General Public's Knowledge, Attitude and Practice on Antibiotic Resistance 2025

Submitted to

Infection Control Branch
Centre for Health Protection
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Submitted by

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Executive Summary

1. This territory-wide telephone survey, conducted by the Hong Kong Institute of Asia-Pacific Studies, Chinese University of Hong Kong, was commissioned by the Infection Control Branch of the Centre for Health Protection of the Department of Health, to explore the knowledge, attitude and practice of the general public with respect to antibiotics and their awareness of antibiotic resistance.

2. The target population of this survey were non-institutional Hong Kong residents aged 15 or above who could speak Cantonese, Putonghua or English (excluding foreign domestic helpers). This survey was conducted by means of landline and mobile telephone interviews via random sampling from 25 November 2025 to 23 December 2025. A sample size of 1,084 successful interviews was achieved with a combined response rate of 53.2%.

3. The data was weighted before analysis based on the probability of being sampled in the combined landline frame and mobile phone frame, and the relevant age-gender distribution of the population (aged 15 or above excluding foreign domestic helpers) provided by the Census and Statistics Department.

Key Findings of the 2025 Survey

1. In the 2025 survey, most (96.8%) of respondents who had taken antibiotics reported that their last taken antibiotics were prescribed by doctors. Out of the 50.1% of total respondents who had consulted doctor(s) for cold or flu in the past 12 months, a vast majority (95.4%) did not request antibiotics during that consultation.

2. Among respondents whose antibiotics last taken were prescribed by doctors, only 21.2%

reported that they had noticed the health advice on antibiotics medicine bags. For those who had noticed the advice, 85.4% considered the advice helpful in reminding them to be aware of and maintain personal hygiene.

3. Despite of their low awareness of printed health advice on medicine bags, many of the respondents always or seldom practising the following health advice when handling or taking antibiotics in daily life during the last medication period:

    a. Eat or drink only thoroughly cooked or boiled items: 98.0% (always: 92.0%; seldom: 6.0%);
    b. Wear surgical mask if you have respiratory symptoms: 95.7% (always: 75.5%; seldom: 20.2%);
    c. Young children with symptoms of infections should minimise contact with other children: 92.8% (always: 81.5%; seldom: 11.4%);
    d. Disinfect and cover all wounds: 92.7% (always: 66.8%; seldom: 26.0%), and;
    e. Practise frequent hand hygiene: 86.1% (always: 61.2%; seldom: 24.9%).

4. A higher proportion of respondents had noticed the warning notice "Do not purchase antibiotics without a prescription" posted at community pharmacies and found it helpful in 2025 (12.5%) compared with 2023 (8.4%), but the percentage remained low.

5. Only half (49.9%) of total respondents wanted their doctors to share decision making with them on antibiotics prescription, but the majority (94.4%) would accept doctor's advice to observe for a few more days before deciding whether to prescribe antibiotics when the initial assessment indicated that antibiotics were not needed. Similar to previous years' survey, a high proportion (83.1%) of all respondents did not prefer consulting doctors who prescribed antibiotics more readily.

6. All respondents were asked whether antibiotics are needed for five health conditions. Compared to 2022, the proportion of respondents (80.0%) correctly answered that cold and flu does not need to be treated by antibiotics maintained at a high level. Besides, more respondents gave correct response for bladder infection or urinary tract infection (UTI), body aches and headaches while less respondents gave correct answer to skin or wound infection. The percentages of correct responses in 2025 and 2022 are listed below:

    a. Headaches (Correct answer: 93.3% in 2025, 79.5% in 2022);
    b. Body aches, that is, muscle or joint pain (Correct answer: 91.3% in 2025, 78.0% in 2022);
    c. Cold and flu (Correct answer: 80.0% in 2025, 49.7% in 2022);
    d. Bladder infection or urinary tract infection (UTI) (Correct answer: 60.1% in 2025, 59.4% in 2022); and
    e. Skin or wound infection (Correct answer: 47.0% in 2025, 75.7% in 2022).

    Compared with 2024, knowledge about body aches and bladder infection or urinary tract infection (UTI) showed significant improvements, with the percentages of correct answer increasing from 89.0% and 54.8% in 2024 to 91.3% and 60.1% in 2025, respectively.

7. As regards antimicrobial resistance related terms, the percentage of respondents who had heard of the term “antibiotic resistance” (抗生素耐藥性) and “antimicrobial resistance” (抗菌素耐藥性) dropped respectively from 76.0% and 40.3% in 2022 to 66.9% and 22.5% in 2025, while both percentages remained relatively stable with slight fluctuations since 2023.

8. In general, the respondents have fairly good knowledge of antimicrobial resistance as reflected by the percentages of correct answers to the following statements about

antibiotic resistance:

a. I myself or other can use the antibiotics kept for treating illness next time (False: 92.6%);
b. Using separate utensils to handle cooked or ready-to-eat foods and raw foods can prevent cross-contamination of drug-resistant bacteria (True: 89.6%);
c. Some infections are becoming increasingly resistant to treatment by antibiotics (True: 81.9%);

Besides, more respondents correctly answered that antibiotics are not anti-inflammatory drugs in 2025 compared to 2024 (65.8% in 2024; 71.9% in 2025) (statistically significant difference).

However, the rate of correctly answering the statement "bacteria which are resistant to antibiotics can spread from person to person" remained the lowest over the years at around 40% (39.2% - 44.1% from 2022 to 2025)

9. There is room for improvement in public awareness of the risk of AMR in food:

a. Eating raw or undercooked food increase your risk of exposure or infection from harmful microorganisms including drug-resistant bacteria (True: 77.9%);
b. If people taking medicines such as antibiotic and stomach medicines (antacids) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced (True: 77.0%);
c. If high-risk individuals (including pregnant women, young children, elderly and people with weakened immune systems) avoid consuming raw

or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced (True: 75.8%);

d. Thorough cooking is effective to kill drug-resistant bacteria in food (True: 73.4%);

10. With respect to the responses to the need of antibiotics for five health conditions and selected statements about antibiotic resistances and risk of AMR in food among elderly respondents, level of knowledge remains relatively low.

Recommendations

1. Given the seasonal occurrence and high incidence of influenza and common cold every year, it remains imperative that continued effort be made to educate the public that common cold and influenza do not need to be treated with antibiotics.

2. Health promotion should reinforce the idea that drug-resistant bacteria can spread as easily as other bacteria from person to person, and that proper infection measures can prevent its spread.

3. To enhance the public's knowledge and awareness of antimicrobial resistance, more intensive health education and promotion activities should be conducted through easy-to-understand and impactful media channels.

4. The level of knowledge on antimicrobial resistance remains relatively low among age group of 65 year and above, measures should be taken to targeted health promotion activities towards this age group.

5. Given their role in continuity of care, primary care doctors are in the best position to

minimize the spread of antibiotic resistance by practising antibiotic stewardship and educating patients about the importance of using antibiotics safely and appropriately.

1. Introduction

1.1 Background

Antibiotic resistance is a burning public health issue. The World Health Organization ("WHO") and WHO Regional Office for the Western Pacific issued the Global Action Plan on Antimicrobial Resistance ("AMR") and Action Agenda for AMR in the Western Pacific Region in 2015 respectively. Recognising the threat posed by AMR to public health, the Hong Kong Special Administrative Region Government announced in the 2016 Policy Address to set up a High-Level Steering Committee on Antimicrobial Resistance ("HLSC") to formulate strategies in collaboration with relevant sectors to tackle the threat. As outlined in the Hong Kong Strategy and Action Plan on Antimicrobial Resistance 2023 – 2027, one of the priority interventions is to conduct regular surveys with the general public on AMR to inform strategies for health promotion (Strategic Intervention 13.1).[1]

The Telephone Survey Research Laboratory of the Hong Kong Institute of Asia-Pacific Studies ("HKIAPS") of The Chinese University of Hong Kong was commissioned by the Infection Control Branch of the Centre for Health Protection of the Department of Health to conduct a territory-wide telephone survey in 2022, 2023, 2024 and 2025. This survey was designed to explore the knowledge, attitude and practice ("KAP") of the general public with respect to antibiotics and their awareness of antibiotic resistance.

[1] HKSAR (2022). Hong Kong Strategy and Action Plan on AMR 2023-2027. Available at: https://www.chp.gov.hk/files/pdf/amr_action_plan_eng_2023.pdf

1.2 Objectives

The objectives of the survey are as follows:

I. To collect information on the KAP of the general public regarding antibiotic resistance,

II. To compare the trends of the KAP among the general public;

III. To generate information to inform strategic health promotion activities among different population subgroups; and

IV. To assess the effectiveness of health education and promotion on control of antibiotic resistance.

2. Research Methodology

2.1 Target population

The target population of this survey was non-institutional Hong Kong residents aged 15 or above who could speak Cantonese, Putonghua or English (excluding foreign domestic helpers).

2.2 Survey design

Telephone survey is an efficient tool for collecting data from a large random sample within a relatively short period of time, avoiding some of the problems encountered from the approach of conducting face-to-face household interviews, such as difficulties of entering the private estates, the long duration of the fieldwork, and difficulties with recruiting and scheduling interviewers. Telephone surveys have traditionally covered only households with residential telephone lines (the so-called “landlines”). With the increasing popularity of mobile phones in Hong Kong, there has been a continued rise in the number of households that do not have landline connections. To address this bias, a dual-frame telephone survey design using both landline and mobile phone numbers was employed in this survey, in which a structured bilingual (Chinese and English) questionnaire was used.

2.3 Sampling

The survey sample included landlines and mobile phone numbers. Landline and mobile sampling frames were derived by combining the four known prefixes assigned to telecommunication service providers in Hong Kong under the most up-to-date “Numbering Plan” published by the Office of the Communications Authority, with four

suffixes from 0000 to 9999. Telephone numbers were randomly selected from the frames to produce the final landline survey samples and mobile phone survey samples for the fieldwork.

(a) *Selection of Respondents for the landline samples*. In each successfully contacted residential unit having at least one landline, only one person aged 15 or above who was available at the moment was randomly selected for interview by the "Next Birthday Rule" (the person whose birthday comes soonest was asked to take the phone for the interview).

(b) *Selection of Respondents for the mobile phone samples.* For each randomly selected mobile phone number, a person aged 15 or above who was a Hong Kong resident and the primary user of that particular number was eligible to be interviewed.

2.4 Implementation of the fieldwork

The fieldwork was conducted independently by the Telephone Survey Research Laboratory of HKIAPS at the Chinese University of Hong Kong. The survey was conducted manually by interviewers with the assistance of the Computer Assisted Telephone Interviewing System ("CATI"). With the help of the CATI system, the interviewers read each question that appeared on the monitor and entered the respondents' answers directly into the computer, thereby bypassing the time-consuming process of coding and data entry. This system enhances the efficiency of conducting telephone surveys.

In order to rehearse the interview procedures and examine the feasibility of the

questionnaire, a pilot study was employed before the formal launching of the fieldwork. The pilot study was conducted from 30 October 2025 to 3 November 2025 and a total of 30 interviews were successfully conducted. The number of successful interviews conducted in the pilot study were not included in the formal fieldwork. Based on the pilot study result, the questionnaire was further fine-tuned. For details of the content of the finalised questionnaire, please refer to **Appendix I**.

The formal fieldwork for this survey was carried out from 25 November 2025 to 23 December 2025. The interviews were mainly conducted from 6:15 p.m. to 10:15 p.m. However, since some respondents were not available at night, some interviews were scheduled to be conducted during daytime (10:00 a.m. to 6:00 p.m.). To further ensure that the survey results were not biased due to high non-contact or non-response rates, when there was no response to a call, further attempts were made to call that number at different times of the day and on different days of the week.

In the end, a total of 1,084 eligible Hong Kong residents aged 15 or above were successfully interviewed. Among these, 379 were from the landline sample and the other 705 were from the mobile sample. For details about the daily progress that was made on the work of enumeration, please refer to **Appendix II**.

2.5 Response rates

The response rate (RR) in this study is defined as the number of completed cases, divided by the sum of the completed cases, refusal cases and drop-out cases (including eligible persons not-at-home or not available during the fieldwork period). The basic formula is shown as follow:

$$RR = \frac{Completed}{Completed + Refused + Drop\ out\ (e.g.\ eligibles\ but\ not\ available)}$$

The response rates for the landline and mobile phone surveys were 50.9% and 54.5%, respectively. The combined response rate was 53.2%. For details of call dispositions and response rates for landline and mobile phone surveys, please refer to **Appendix III.**

2.6 Quality control

HKIAPS established and implemented quality-control measures to ensure a satisfactory standard of performance throughout the duration of the survey. Such measures included the following: (1) an instant telephone monitoring with audio recording system has been installed so that the fieldwork supervisor can monitor the process of the interview; (2) carrying out independent checks of at least 15% of the completed interviews; and (3) carrying out independent checks on the "ineligible" telephone numbers; and (4) checking the consistency of different aspects of the preliminary results.

2.7 Weighting of data

Weighting is a technique for correcting or making statistical adjustments to survey data after they have been collected in order to improve the accuracy of the survey estimates. Since there are different probabilities being selected for every eligible respondent (some of them own either landline or mobile phone only but the others may have both), differential propensities to respond (e.g. old females dislike being interviewed via mobile phone, young people seldom stay at home so that it is difficult to find them through residential landlines), and different sampling frames coverage problems among various groups in the population, the process of weighting is needed in the analysis of telephone surveys.

Weight adjustments were based on two steps. The first step was to compute the design weights by calculating the probability of being sampled in the combined landline frame

and mobile phone frame. The next step of weighting was to adjust the samples to the current population structure of Hong Kong which was based on the updated population's age-gender distribution (aged 15 or above excluding foreign domestic helpers) provided by the Census and Statistics Department. For details of the process of weighting, please refer to **Appendix IV**.

2.8 Rounding of figures

Since the survey data had been weighted, there might be a slight discrepancy between the sum of the individual responses and the total, as shown in the tables or charts in the following sections. These discrepancies were due to rounding.

2.9 Statistical analysis plan

All the data collected from the current survey were carefully validated, recoded, and analysed using the statistical software package SPSS version 29.

The statistical presentation of single variable included descriptive statistics such as frequency and percentage. When analysing more than one variable (such as sub-groups analysis of demographic variables), different statistical significance tests were applied to analyse different types of questions and different levels of measurement of variables (such as nominal, ordinal or interval data). For example, the Chi-square test was employed to detect whether there was an association between two variables (i.e. whether the variables were independent or related).

The level of statistical significance was often expressed as a *p*-value (calculated probability) between 0 and 1. The smaller the *p*-value, the stronger the confidence that we should reject the null hypothesis (no relationship between two variables or the

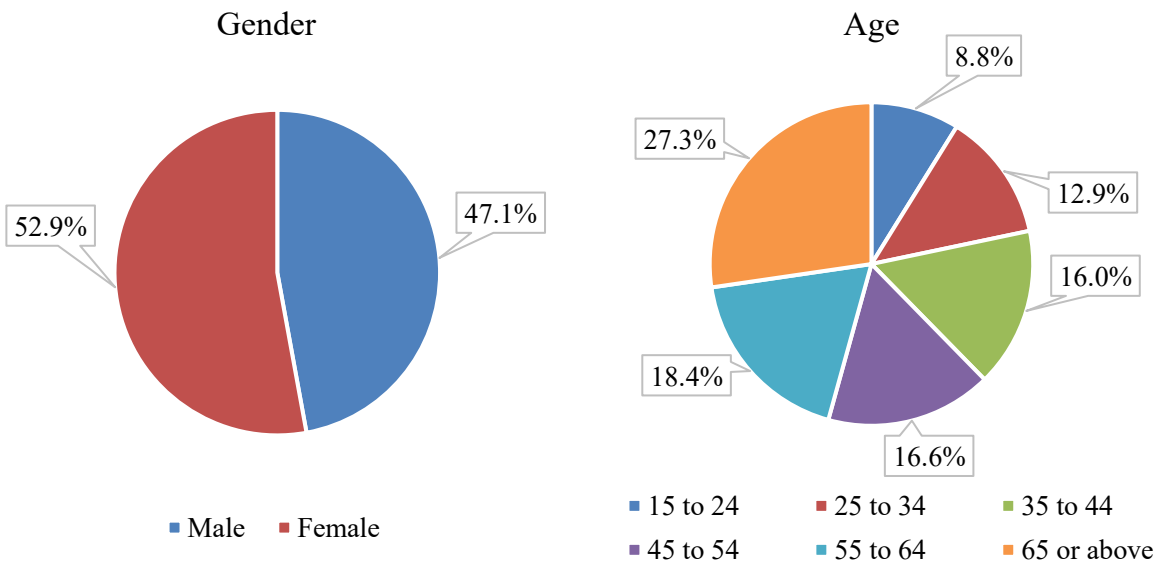
observed differences between two variables were just random). There were three levels of significance frequently used in survey reports: $p < 0.05$, $p < 0.01$ and $p < 0.001$.

3. Profiles of the Respondents

In the survey, the respondents were asked about their gender and age (the information on gender was filled in by the interviewers). The weighted information on demographics is presented in Figure 3.1. Regarding gender, the proportion of female respondents (52.9%) was slightly greater than that of male respondents (47.1%).

Concerning the age group, 8.8% of the respondents were 15 to 24 years of age, 12.9% were 25 to 34, 16.0% were 35 to 44, 16.6% were 45 to 54, 18.4% were 55 to 64, and the remaining 27.3% were 65 years old or above.

Figure 3.1: Demographics of respondents (%)



The unweighted and weighted distribution of frequency tables of gender and age can be found in **Appendix V**.

4. Survey Results

In this chapter, the descriptive statistics of each question are presented. Besides, sub-group analyses of each question are performed based on the breakdown of respondents' gender and age group. The chi-square test is used for sub-group analysis. The results of sub-group analyses which are statistically insignificant at the 5% level are not discussed in the text but reported in the tables only. All the following survey findings are based on weighted data.

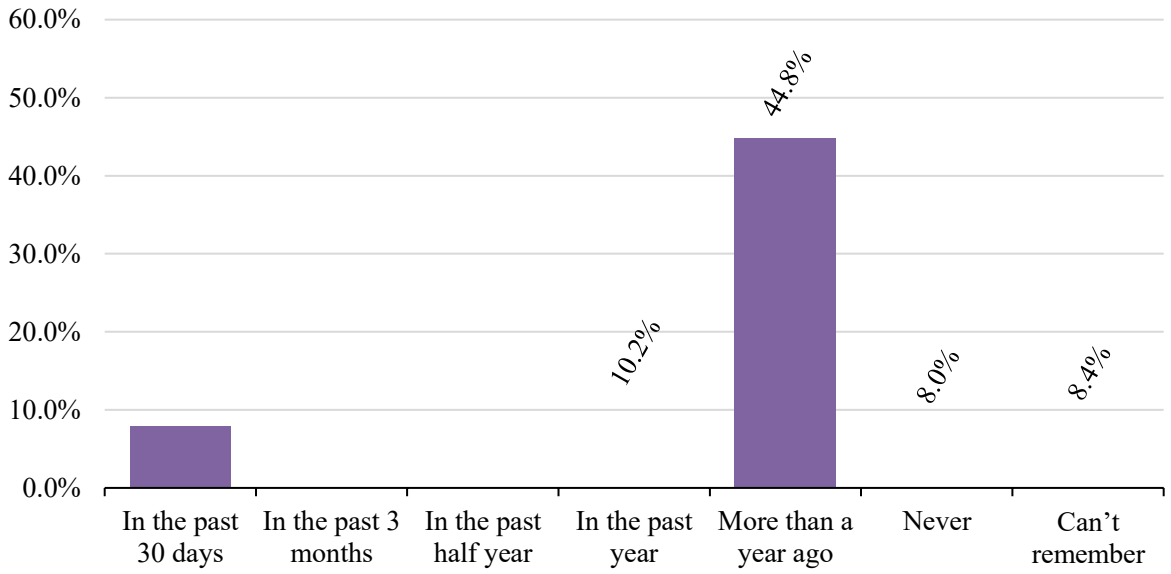
4.1 Use of antibiotics

This section presents when respondents last took antibiotics, and how and where they obtained them.

4.1.1 Time of last taken antibiotics

More than one-third (38.9%) of all respondents reported that they last took antibiotics within the past year, while 44.8% said that they last took antibiotics more than a year ago (Figure 4.1.1).

Figure 4.1.1: Time of last taken antibiotics (%)



Base(N): Persons aged 15 and over = 1084.
Question: A1 "When did you last take antibiotics?"

Analysed by age, a lower proportion of those aged between 15 and 34 last took their antibiotics in the past 30 days. There was no statistically significant difference in the time of last taken antibiotics between different genders (Table 4.1.1).

Table 4.1.1: Time of last taken antibiotics by gender and age (%)

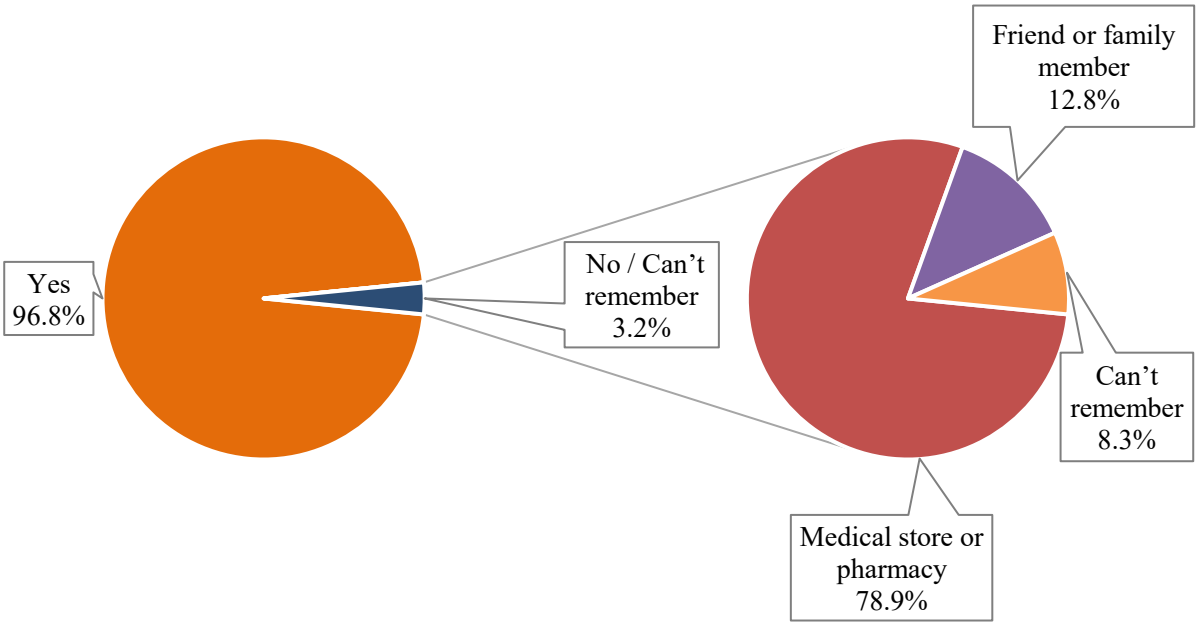
	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
In the past 30 days	8.9	7.0	5.9	5.2	8.3	7.0	6.2	11.2
In the past 3 months	8.4	10.4	12.1	13.3	9.3	6.7	12.0	6.9
In the past half year	10.5	12.0	15.7	16.5	12.4	16.0	7.0	6.6
In the past year	10.2	10.2	8.2	12.7	16.4	8.3	8.7	8.3
More than a year ago	46.4	43.3	42.1	38.4	44.4	50.5	51.7	40.7
Never	7.3	8.6	12.3	2.6	4.2	6.4	7.3	12.8
Can't remember	8.3	8.5	3.7	11.2	5.0	5.1	7.0	13.5
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.676		0.000***					

Question: A1 "When did you last take antibiotics?"
*p<0.05, **p<0.01, ***p<0.001

4.1.2 Whether the last taken antibiotics were prescribed by doctors

Those respondents who had taken antibiotics before were further asked whether the antibiotics last taken were prescribed by doctors. The vast majority (96.8%) of them responded "yes". The remaining 3.2% (no: 2.5%; could not remember: 0.7%) were then asked where they obtained their antibiotics. Among them, more than three-fourths (78.9%) reported that they obtained the antibiotics from a medical store or pharmacy (Figure 4.1.2).

Figure 4.1.2: Whether the last taken antibiotics were prescribed by doctors or came from other source (%)



Base(N): Persons aged 15 and over who had taken antibiotics = 906.
Question: A2 "On that occasion, were the antibiotics prescribed by doctors (including dentists)?"

Base(N): Persons aged 15 and over whose last taken antibiotics were not prescribed by doctors or who could not remember whether they were prescribed by doctors = 29.
Question: A3 "On that occasion, where did you get the antibiotics?"

No statistically significant difference between the respondents' gender and age was found on whether the last taken antibiotics were prescribed by doctors (Table 4.1.2a).

Table 4.1.2a: Whether the last taken antibiotics were prescribed by doctors by gender and age (%)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Yes	96.6	97.0	98.7	95.0	98.0	97.9	97.3	95.2
No	2.7	2.3	1.3	3.8	2.0	2.1	2.0	3.3
Can't remember	0.6	0.7	0.0	1.2	0.0	0.0	0.7	1.5
Sample size	(431)	(475)	(81)	(120)	(157)	(160)	(171)	(218)
p-value (Chi-Square)	0.919		0.631					

Question: A2 "On that occasion, were the antibiotics prescribed by doctors (including dentists)?

As for the source of last taken antibiotics for respondents whose last taken antibiotics were not or could not remember if prescribed by doctors, the percentage distribution across gender and age groups is presented as follow. These results, however, should be interpreted with caution given the insufficient sample size (Table 4.1.2b).

Table 4.1.2b: Source of last taken antibiotics for those whose last taken antibiotics were not or could not remember if prescribed by doctors by gender and age (%)

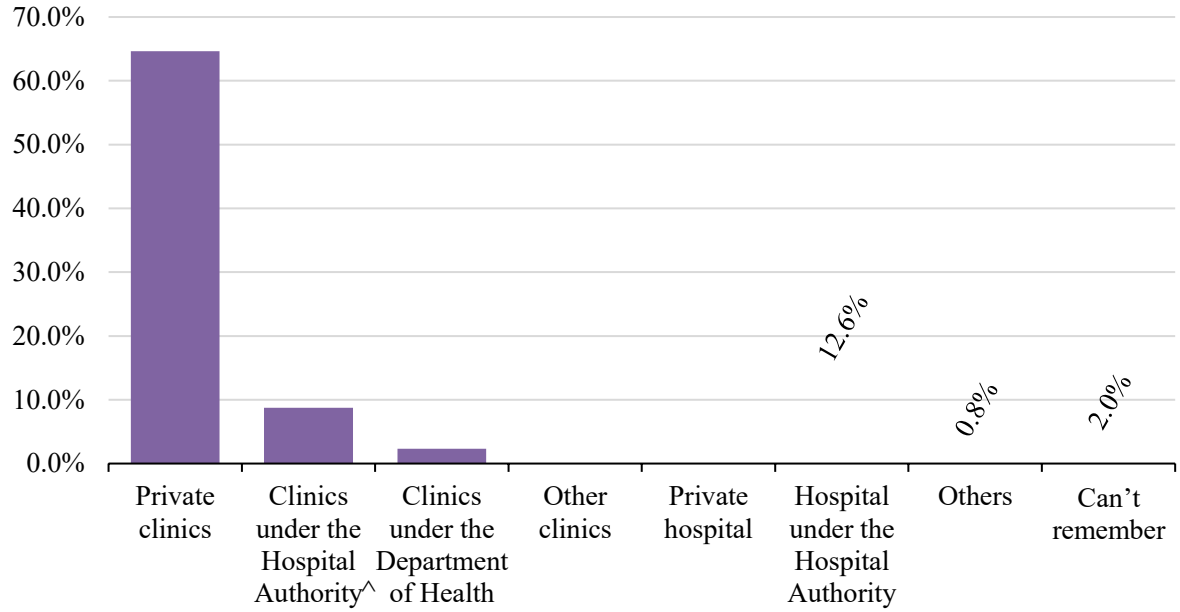
	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Medical store or pharmacy	81.3	76.6	0.0	70.2	100.0	73.9	90.5	81.6
The internet	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Friend or family member	15.7	9.8	100.0	29.8	0.0	26.1	0.0	0.0
Leftover from before	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somewhere / someone else	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Can't remember	3.0	13.6	0.0	0.0	0.0	0.0	9.5	18.4
Sample size	(15)	(14)	(1)	(6)	(3)	(3)	(5)	(11)
p-value (Chi-Square)^	N/A		N/A					

Question: A3 "On that occasion, where did you get the antibiotics?"
Note: ^Due to the insufficient sample size, statistical testing was deemed inapplicable.

4.1.3 Type of clinic or hospital respondents got the last taken antibiotics from

Respondents whose last taken antibiotics were prescribed by doctors were further asked which type of clinic or hospital their last taken antibiotics were obtained from. Around two-thirds (64.7%) of them replied that they obtained the antibiotics from private clinics (Figure 4.1.3).

Figure 4.1.3: Type of clinic or hospital respondents got the last taken antibiotics from (%)



Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors = 878.
Question: A4 "On that occasion, from which type of clinic or hospital did you get the antibiotics?"
Note: ^ Starting from October 11, 2025, general outpatient clinics and family medicine specialist clinics have been unified under the name "family medicine outpatient services". As respondents may still use these three names interchangeably, the option was modified in the 2025 survey to reflect the name changes. This option is now referred to as "Clinics under the Hospital Authority (including family medicine clinics (formerly known as general outpatient clinics or family medicine specialist clinics), specialist outpatient clinics in hospitals under the Hospital Authority, and dental clinics in hospitals under the Hospital Authority)".

Regarding the type of clinic or hospital where the last taken antibiotics were obtained, no statistically significant difference was found between different genders or age groups (Table 4.1.3).

Table 4.1.3: Type of clinic or hospital respondents got the last taken antibiotics from by gender and age (%)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Private clinics	63.1	66.0	60.7	68.5	67.2	64.7	70.6	57.4
Clinics under the Hospital Authority ^	8.8	8.6	8.7	5.5	10.8	8.4	8.8	9.2
Clinics under the Department of Health	2.2	2.4	0.8	1.9	1.9	1.7	3.5	2.9
Other clinics	1.9	1.5	3.0	0.0	0.9	3.5	1.0	1.8
Private hospital	5.2	9.2	7.7	10.3	7.8	6.9	5.2	7.2
Hospital under the Hospital Authority	15.6	9.8	16.4	12.5	10.2	14.4	7.8	15.3
Others	0.8	0.7	1.8	0.0	0.4	0.0	1.7	0.9
Can't remember	2.2	1.8	1.0	1.4	0.8	0.5	1.4	5.2
Sample size	(417)	(461)	(80)	(114)	(154)	(156)	(166)	(208)
p-value (Chi-Square)	0.123		0.158					

Question: A4 "On that occasion, from which type of clinic or hospital did you get the antibiotics?"

Note: ^ Starting from October 11, 2025, general outpatient clinics and family medicine specialist clinics have been unified under the name "family medicine outpatient services". As respondents may still use these three names interchangeably, the option was modified in the 2025 survey to reflect the name changes. This option is now referred to as "Clinics under the Hospital Authority (including family medicine clinics (formerly known as general outpatient clinics or family medicine specialist clinics), specialist outpatient clinics in hospitals under the Hospital Authority, and dental clinics in hospitals under the Hospital Authority)".

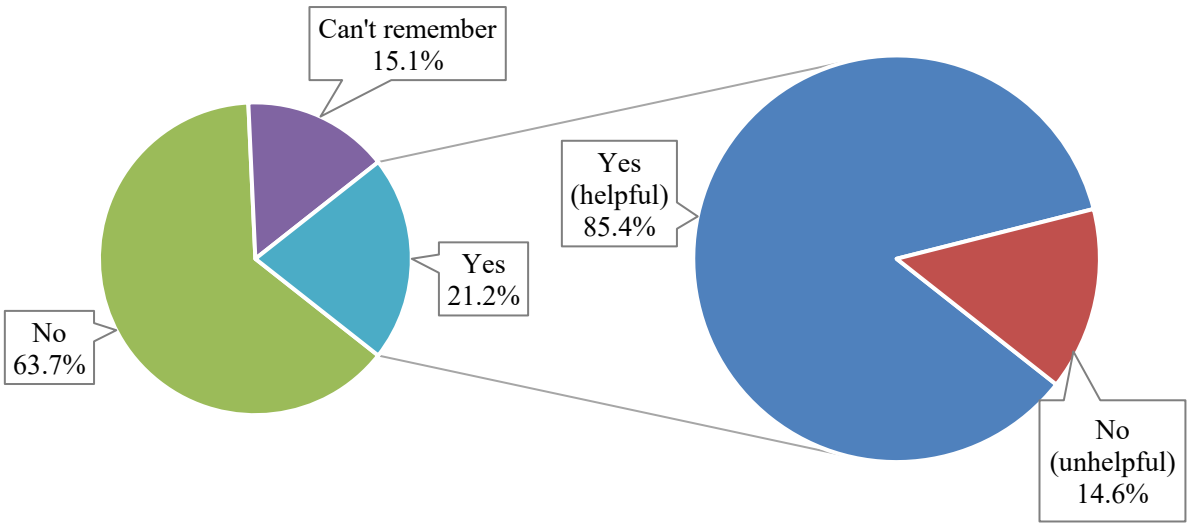
*p<0.05, **p<0.01, ***p<0.001

4.2 Health advice printed on antibiotics medicine bags

4.2.1 Whether respondents noticed the health advice on antibiotics medicine bags

If respondents answered that their last taken antibiotics were prescribed by doctors, they would be further asked whether they noticed the health advice printed on antibiotics medicine bags. Only a fifth of them (21.2%) reported that they had noticed the advice. Respondents who had noticed the advice would be further asked whether it was helpful in reminding them to be aware of and maintain personal hygiene. More than four-fifths (85.4%) of this subgroup reported that the advice was helpful (Figure 4.2.1).

Figure 4.2.1: Whether respondents noticed the advice on antibiotics medicine bags and found it helpful (%)



Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors = 878.

Question: A5 "On that occasion, did you notice there is advice on personal hygiene on the antibiotics medicine bags?"

Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors and have noticed the advice on personal hygiene on the antibiotics medicine bags = 186.

Question: A6 "Was the advice helpful to remind you to be aware of and maintain personal hygiene?"

There was no statistically significant difference in whether the respondents noticed the advice or found it helpful between different genders or age groups (Table 4.2.1).

Table 4.2.1: Whether respondents noticed the advice on antibiotics medicine bags and found it helpful by gender and age (%)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Whether respondents noticed the advice on antibiotics medicine bags								
Yes	24.5	18.3	23.8	22.4	20.5	18.8	16.6	25.6
No	61.8	65.4	52.0	65.6	64.8	63.8	68.3	62.5
Can't remember	13.7	16.4	24.2	12.0	14.7	17.4	15.1	11.9
Sample size	(417)	(461)	(80)	(114)	(154)	(156)	(166)	(208)
p-value (Chi-Square)	0.065		0.186					
Whether respondents found the advice helpful								
Yes (helpful)	86.5	84.2	87.5	91.1	89.9	87.2	82.0	80.2
No (unhelpful)	13.5	15.8	12.5	8.9	10.1	12.8	18.0	19.8
Sample size	(102)	(84)	(19)	(26)	(32)	(29)	(28)	(53)
p-value (Chi-Square)	0.668		0.743					

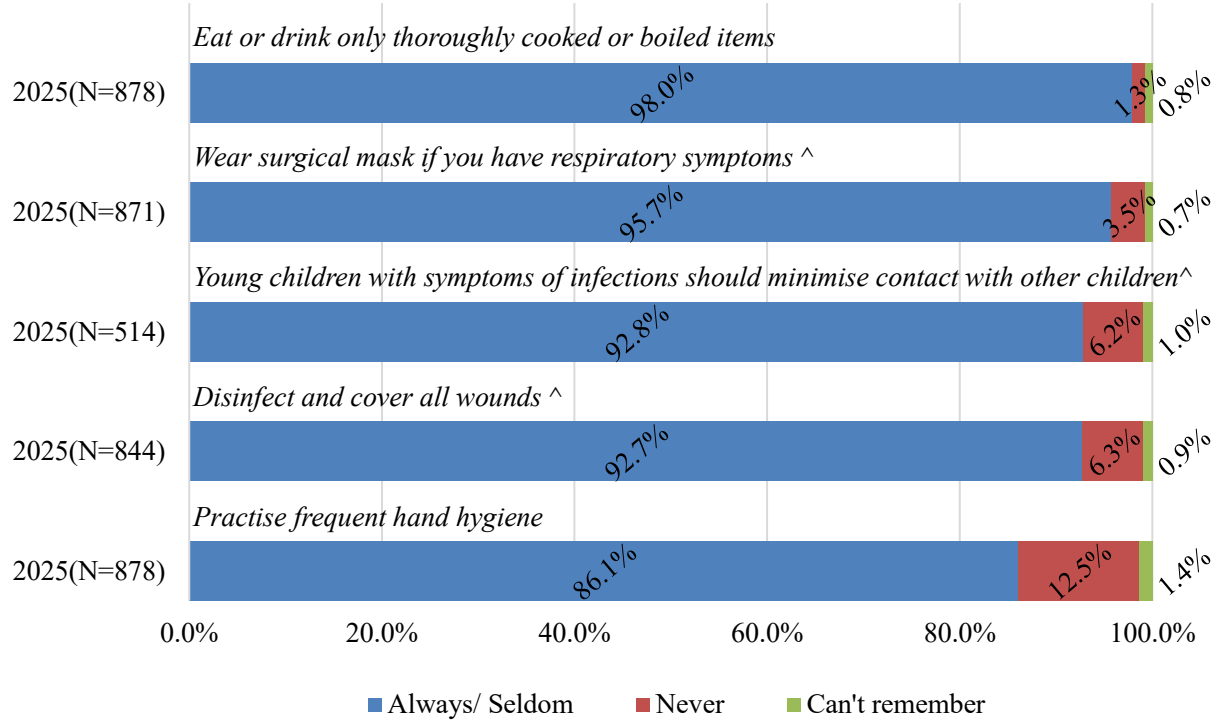
Question: A5 "On that occasion, did you notice there is advice on personal hygiene on the antibiotics medicine bags?"; A6 "Was the advice helpful to remind you to be aware of and maintain personal hygiene?"
*p<0.05, **p<0.01, ***p<0.001

4.2.2 Frequency of practising the health advice during the last medication period

If respondents said that their antibiotics last taken were prescribed by doctors, they would be asked how often they practised the health advice listed on antibiotics medicine bags. During the most recent medication period, the proportions of individuals who always or seldom practised the health advice when handling or taking antibiotics are listed below:

a. Eat or drink only thoroughly cooked or boiled items: 98.0% (always: 92.0%; seldom: 6.0%);
b. Wear surgical mask if you have respiratory symptoms: 95.7% (always: 75.5%; seldom: 20.2%);
c. Young children with symptoms of infections should minimise contact with other children: 92.8% (always: 81.5%; seldom: 11.4%);
d. Disinfect and cover all wounds: 92.7% (always: 66.8%; seldom: 26.0%), and;
e. Practise frequent hand hygiene: 86.1% (always: 61.2%; seldom: 24.9%) (Figure 4.2.2).

Figure 4.2.2: Frequency of practising the health advice during the last medication period (%)



Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors.
Question: A7a-e "On that occasion, how often did you practise the following when you handled or took antibiotics in your daily life during the medication period?"
Note: ^Those with no respiratory symptoms/no wounds/no young children at home were excluded respectively.

Compared with their female counterparts, male respondents had a lower percentage of always or seldom practising frequent hand hygiene. Those aged between 65 or above had the lowest percentage of always or seldom disinfecting and covering all wounds, and the lowest percentage of always or seldom wearing surgical mask when they had respiratory symptoms (Table 4.2.2).

Table 4.2.2: Frequency of practising the health advice during the last medication period by gender and age (%)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Practise frequent hand hygiene								
Always/ Seldom	83.1	88.8	89.3	94.0	86.6	86.6	82.6	82.5
Never	16.2	9.3	10.7	6.0	10.9	12.9	14.3	16.4
Can't remember	0.8	1.9	0.0	0.0	2.6	0.5	3.0	1.1
Sample size	(417)	(461)	(80)	(114)	(154)	(156)	(166)	(208)
p-value (Chi-Square)	0.004**		0.064					
Eat or drink only thoroughly cooked or boiled items								
Always/ Seldom	97.2	98.7	100.0	98.2	98.5	97.0	97.7	97.5
Never	2.1	0.6	0.0	1.5	1.5	2.3	0.0	1.8
Can't remember	0.7	0.8	0.0	0.3	0.0	0.8	2.3	0.7
Sample size	(417)	(461)	(80)	(114)	(154)	(156)	(166)	(208)
p-value (Chi-Square)	0.131		0.289					
*Disinfect and cover all wounds^*								
Always/ Seldom	93.1	92.3	92.9	95.6	92.1	94.0	92.2	90.7
Never	6.5	6.2	7.1	4.4	7.9	5.7	4.2	8.4
Can't remember	0.4	1.4	0.0	0.0	0.0	0.2	3.6	0.8
Sample size	(400)	(444)	(76)	(113)	(150)	(153)	(164)	(187)
p-value (Chi-Square)	0.264		0.021*					

(To be continued)

Table 4.2.2: Frequency of practising the health advice during the last medication period by gender and age (%) (Continued)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
*Wear surgical mask if you have respiratory symptoms^*								
Always/ Seldom	94.9	96.5	94.8	98.4	99.8	96.8	95.0	91.4
Never	4.6	2.5	5.2	1.6	0.2	2.8	2.8	7.5
Can't remember	0.5	1.0	0.0	0.0	0.0	0.4	2.3	1.0
Sample size	(414)	(457)	(80)	(114)	(152)	(155)	(165)	(206)
p-value (Chi-Square)	0.185		0.005**					
*Young children with symptoms of infections should minimise contact with other children^*								
Always/ Seldom	91.2	94.2	88.7	96.4	93.9	93.2	90.8	92.8
Never	8.2	4.5	11.3	3.6	5.5	6.8	5.3	6.6
Can't remember	0.6	1.3	0.0	0.0	0.6	0.0	3.9	0.6
Sample size	(236)	(278)	(43)	(61)	(112)	(110)	(97)	(92)
p-value (Chi-Square)	0.176		0.188					

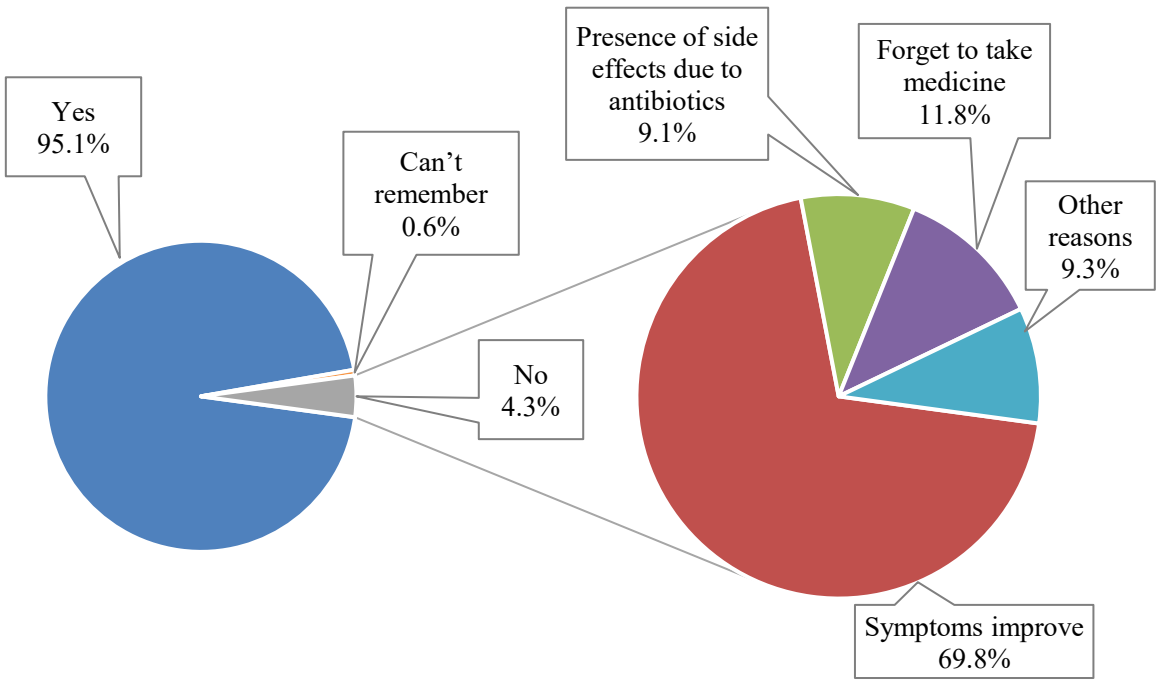
Question: A7a-e "On that occasion, how often did you practise the following when you handled or took antibiotics in your daily life during the medication period?"
Note: ^Those with no wounds/no respiratory symptoms/no young children at home were excluded respectively.
*p<0.05, **p<0.01, ***p<0.001

4.3 Whether respondents completed the whole course of treatment as instructed by doctor

4.3.1 Whether respondents completed the whole course of treatment

The survey also asked respondents whose antibiotics last taken were prescribed by doctors whether they completed the whole course of treatment as instructed by their doctors. The majority (95.1%) of them reported that they completed the whole course of treatment. Of the respondents who did not complete the whole course of treatment, more than two-thirds (69.8%) replied that the major reason was improvement of symptoms (Figure 4.3.1).

Figure 4.3.1: Whether respondents completed the whole course of treatment as instructed by doctor and the main reason why they did not (%)



Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors = 878.

Question: A8 "On that occasion, did you complete the whole course of treatment as instructed by doctor?"

Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors and did not complete the whole course of treatment as instructed by doctor = 38.

Question: A9 "The main reason that you did not complete the whole course of treatment is:"

No statistically significant difference was observed between genders and age groups as to whether the respondents completed the whole course of treatment as instructed by doctor. (Table 4.3.1).

Table 4.3.1: Whether respondents completed the whole course of treatment as instructed by doctor and the main reason why they did not by gender and age

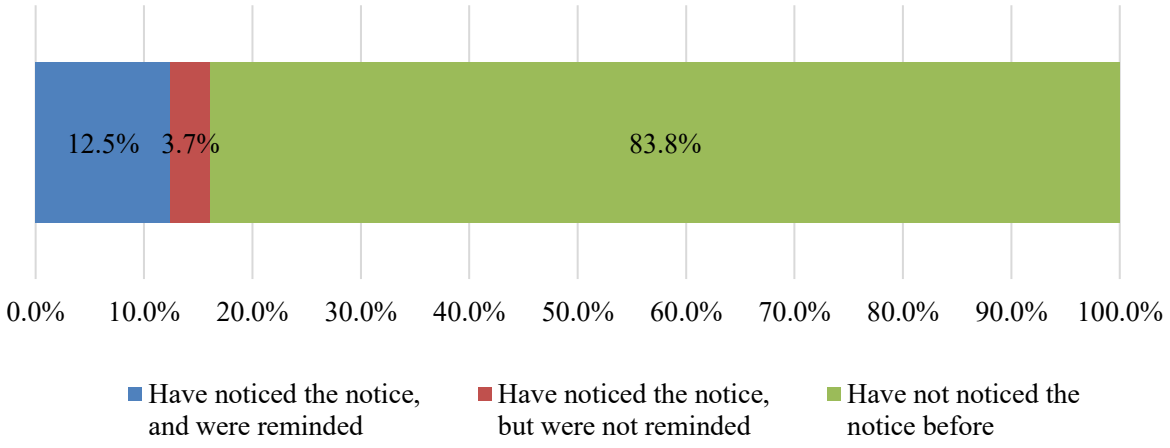
	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Whether respondents completed the whole course of treatment as instructed by doctor								
Yes	94.9	95.3	91.1	94.1	95.2	93.2	97.6	96.6
No	4.4	4.2	8.9	5.9	4.0	5.7	2.4	2.4
Can't remember	0.7	0.5	0.0	0.0	0.8	1.1	0.0	1.0
Sample size	(417)	(461)	(80)	(114)	(154)	(156)	(166)	(208)
p-value (Chi-Square)	0.942		0.256					
The main reason why they did not complete the whole course of treatment								
Symptoms improve	74.8	65.1	100.0	56.9	16.9	91.7	81.4	60.9
Presence of side effects due to antibiotics	7.5	10.6	0.0	20.8	21.1	0.0	18.6	0.0
Forget to take medicine	9.3	14.2	0.0	22.3	48.6	0.0	0.0	0.0
Lost the medicine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other reasons	8.4	10.1	0.0	0.0	13.4	8.3	0.0	39.1
Sample size	(19)	(19)	(7)	(7)	(6)	(9)	(4)	(5)
p-value (Chi-Square)^	N/A		N/A					

Question: A8 "On that occasion, did you complete the whole course of treatment as instructed by doctor?"; A9 "The main reason that you did not complete the whole course of treatment is:"
Note: ^Due to the insufficient sample size, statistical testing was deemed inapplicable.
*p<0.05, **p<0.01, ***p<0.001

4.4 Notices about "Do not purchase antibiotics without a prescription" posted at community pharmacies

The survey then asked respondents whether they had noticed the notices about "Do not purchase antibiotics without a prescription" posted at community pharmacies, and if so, whether they found the notice helpful in reminding them not to purchase antibiotics without doctor's prescription. Of those who had been to pharmacies and remembered whether they had noticed the notice, 16.2% said that they had noticed the notices (reminded:12.5%; not reminded: 3.7%) and another 83.8% said they had not (Figure 4.4).

Figure 4.4: Whether respondents noticed the notices posted at community pharmacies and found them useful (%)



Base(N): Persons aged 15 and over who have been to pharmacies and remember whether they have noticed the notice about 'Do not purchase antibiotics without a prescription' = 912.
Question: A10 "Some people might have seen notices about 'Do not purchase antibiotics without a prescription' posted at community pharmacies. On last visit to community pharmacy, did you see this notice? If yes, did the notice help to remind you not to purchase antibiotics without doctor's prescription?"

Analysed by age, a higher proportion of those aged between 25 and 34 said that they had noticed the notice and were reminded. There was no statistically significant difference between males and females (Table 4.4).

Table 4.4: Whether respondents noticed the notices posted at community pharmacies and found them useful by gender and age (%)

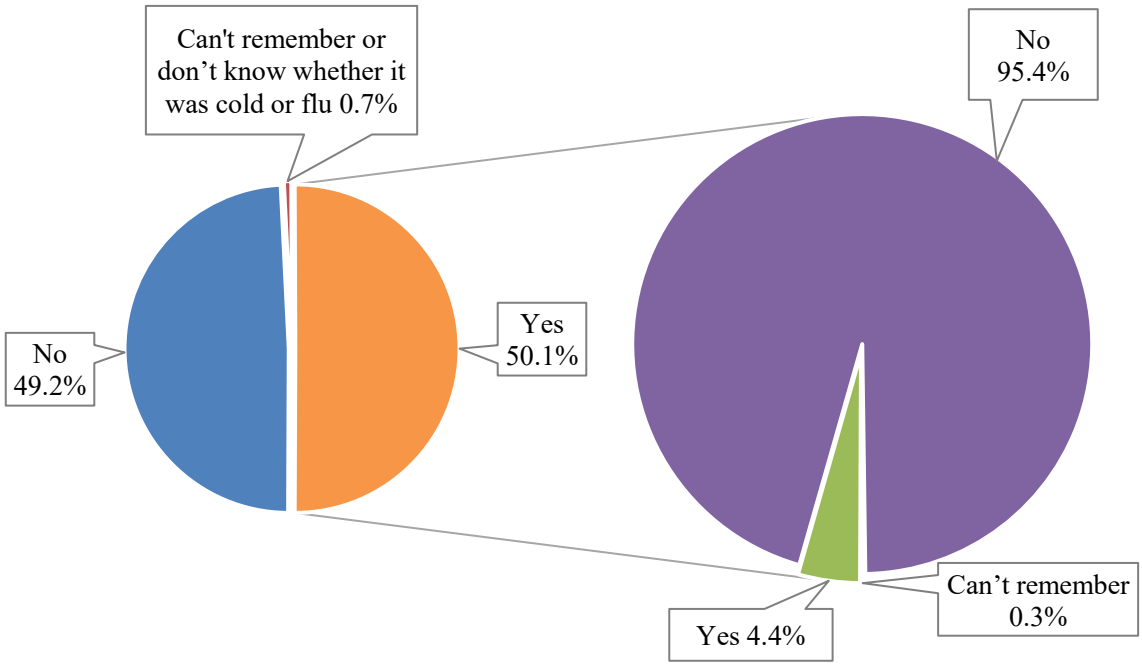
	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Have noticed the notice, and were reminded	13.2	11.8	15.0	22.0	12.2	10.1	12.4	8.2
Have noticed the notice, but were not reminded	3.3	4.1	4.6	6.9	4.2	0.7	2.9	3.8
Have not noticed the notice before	83.5	84.1	80.4	71.1	83.6	89.2	84.6	88.0
Sample size	(438)	(474)	(80)	(127)	(142)	(143)	(178)	(242)
p-value (Chi-Square)	0.673		0.006**					

Question: A10 "Some people might have seen notices about 'Do not purchase antibiotics without a prescription' posted at community pharmacies. On last visit to community pharmacy, did you see this notice? If yes, did the notice help to remind you not to purchase antibiotics without doctor's prescription?"
*p<0.05, **p<0.01, ***p<0.001

4.5 Whether respondents had consulted doctor(s) for cold or flu and requested antibiotics in the past 12 months

All respondents were asked whether they had consulted doctor(s) for cold or flu in the past 12 months, and 50.1% answered that they had. Respondents who had consulted doctor(s) for cold or flu in the past 12 months were further asked whether they had asked for antibiotics during that consultation. The vast majority (95.4%) of the respondents said they did not (Figure 4.5).

Figure 4.5: Whether respondents had consulted doctor(s) for cold or flu and requested antibiotics in the past 12 months (%)



Base(N): Persons aged 15 and over = 1084.
Question: A11"In the past 12 months, had you consulted doctor(s) for cold or flu?"

Base(N): Persons aged 15 and over who had consulted a doctor for cold or flu in the past 12 months = 543.
Question: A12"Had you asked for antibiotics during that consultation?"

Compared with other age groups, those aged 25 to 34 had a higher rate of having consulted doctor(s) for cold or flu in the past 12 months, while no statistically significant difference was found between genders. There was no statistically significant difference in request for antibiotics between genders and age groups (Table 4.5).

Table 4.5: Whether respondents had consulted doctor(s) for cold or flu and requested antibiotics in the past 12 months by gender and age (%)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
In the past 12 months, had you consulted doctor(s) for cold or flu?								
Yes	47.0	52.9	56.6	63.6	56.3	56.0	45.5	37.6
No	52.6	46.1	43.4	35.6	42.5	43.5	53.4	61.9
Can't remember or don't know whether it was cold or flu	0.4	1.0	0.0	0.8	1.1	0.6	1.1	0.5
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.061		0.000***					
Had you asked for antibiotics during that consultation?								
Yes	4.3	4.4	8.6	3.2	5.7	3.0	5.2	2.6
No	95.4	95.3	91.4	96.8	93.6	97.0	94.8	96.7
Can't remember	0.3	0.3	0.0	0.0	0.7	0.0	0.0	0.7
Sample size	(240)	(303)	(54)	(89)	(97)	(101)	(91)	(111)
p-value (Chi-Square)	0.996		0.739					

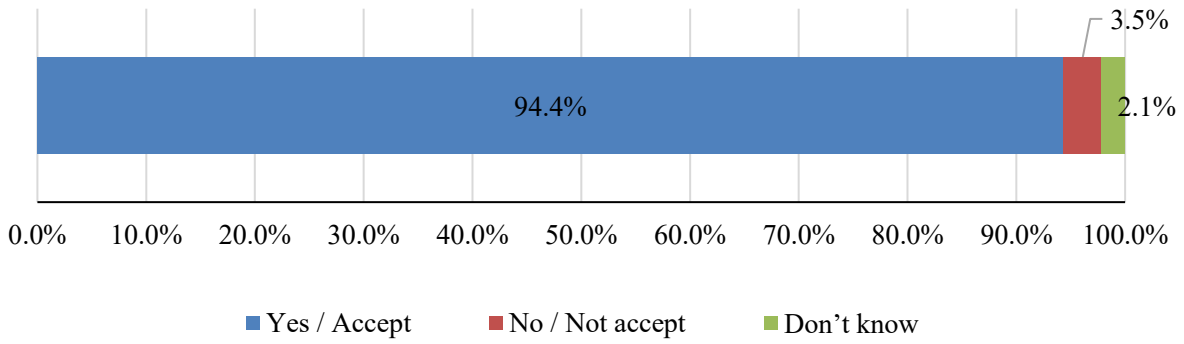
Question: A11 "In the past 12 months, had you consulted doctor(s) for cold or flu?"; A12 "Had you asked for antibiotics during that consultation?"
*p<0.05, **p<0.01, ***p<0.001

4.6 General views, knowledge and awareness

4.6.1 Whether respondents would accept the doctor's advice to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics or not

All respondents were asked when doctor's initial assessment indicated that antibiotic was not needed at the moment, whether they would accept doctor's advice to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics or not. A vast majority (94.4%) of the respondents said that they would accept the doctor's advice (Figure 4.6.1).

Figure 4.6.1: Whether respondents would accept the doctor's advice to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics or not (%)



Base(N): Persons aged 15 and over = 1084.
Question: A13 "When you consult a doctor and his / her initial assessment for you indicated that antibiotic is not needed at the moment, would you accept if the doctor tells you to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics or not?"

Those aged 65 or above were less inclined to accept the doctor's advice to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics or not. There was no statistically significant difference in acceptance of the doctor's advice between genders (Table 4.6.1).

Table 4.6.1: Whether respondents would accept the doctor's advice to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics or not by gender and age (%)

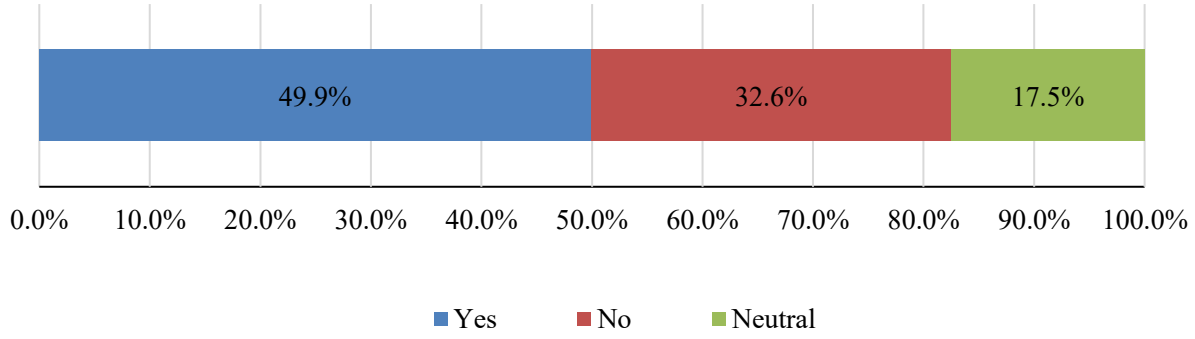
	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Yes / Accept	94.3	94.4	98.0	96.8	94.8	96.0	96.0	89.7
No / Not accept	4.1	3.0	2.0	2.2	4.1	2.9	1.8	5.8
Don't know	1.6	2.6	0.0	1.1	1.1	1.1	2.2	4.5
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.309		0.020*					

Question: A13 "When you consult a doctor and his / her initial assessment for you indicated that antibiotic is not needed at the moment, would you accept if the doctor tells you to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics or not?"
*p<0.05, **p<0.01, ***p<0.001

4.6.2 Whether respondents wanted doctors to share decision making with them on antibiotics prescription

Around half (49.9%) of the respondents replied that they wanted doctors to share decision making with them on antibiotics prescription, while 32.6% said they did not. (Figure 4.6.2).

Figure 4.6.2: Whether respondents wanted doctors to share decision making with them on antibiotics prescription (%)



Base(N): Persons aged 15 and over = 1084.
Question: A14 “Do you want your doctor to share decision making with you on antibiotics prescription?”

Compared with other age groups, respondents aged 65 or above were less inclined to have doctors share decision making with them on antibiotics prescription. No statistically significant difference was found between genders (Table 4.6.2).

Table 4.6.2: Whether respondents wanted doctors to share decision making with them on antibiotics prescription by gender and age (%)

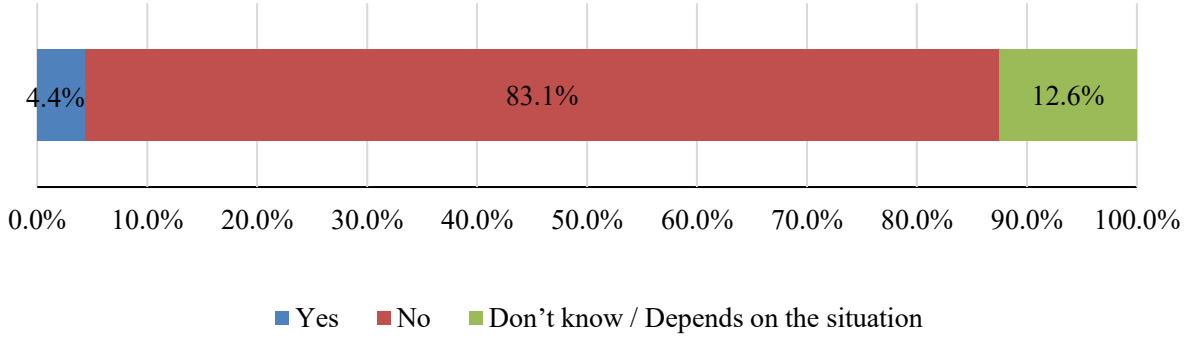
	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Yes	49.2	50.6	57.6	54.5	56.2	53.8	53.6	36.8
No	34.4	30.9	26.3	31.8	28.8	30.8	34.3	37.1
Neutral	16.4	18.5	16.1	13.7	15.1	15.3	12.1	26.1
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.412		0.000***					

Question: A14 "Do you want your doctor to share decision making with you on antibiotics prescription?"
*p<0.05, **p<0.01, ***p<0.001

4.6.3 Whether respondents preferred consulting doctors who would prescribe antibiotics more readily

The majority of the respondents (83.1%) did not prefer consulting doctors who would prescribe antibiotics more readily, whereas only 4.4% preferred so (Figure 4.6.3).

Figure 4.6.3: Whether respondents preferred consulting doctors who would prescribe antibiotics more readily (%)



Base(N): Persons aged 15 and over = 1084.
Question: A15 "Do you prefer consulting doctors who prescribe antibiotics more readily?"

There was no statistically significant difference in the preference of consulting doctors who would prescribe antibiotics more readily between genders and age groups (Table 4.6.3).

Table 4.6.3: Whether respondents preferred consulting doctors who would prescribe antibiotics more readily by gender and age (%)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Yes	4.6	4.2	0.6	7.2	5.0	6.0	3.8	3.3
No	81.5	84.4	87.9	81.0	85.9	82.7	85.6	79.3
Don't know / Depends on the situation	13.8	11.4	11.4	11.8	9.1	11.2	10.6	17.4
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.428		0.071					

Question: A15 "Do you prefer consulting doctors who prescribe antibiotics more readily?"
*p<0.05, **p<0.01, ***p<0.001

4.6.4 Knowledge of antibiotics

All respondents were asked whether certain health conditions need to use antibiotics, including bladder infection or urinary tract infection (UTI), cold and flu, skin or wound infection, body aches and headaches. The percentages of respondents who could correctly indicate which health conditions need or need not to be treated with antibiotics are listed below:

a. Headaches (No: 93.3%);

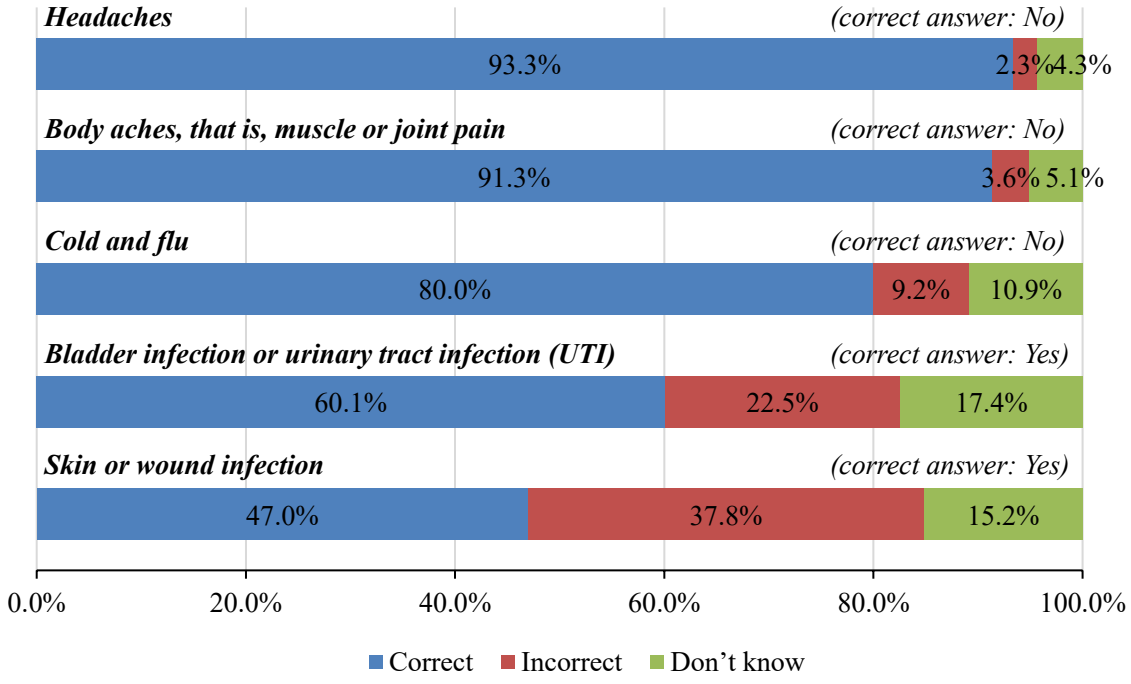
b. Body aches, that is, muscle or joint pain (No: 91.3%);

c. Cold and flu (No: 80.0%);

d. Bladder infection or urinary tract infection (UTI) (Yes: 60.1%); and

e. Skin or wound infection (Yes: 47.0%) (Figure 4.6.4a).

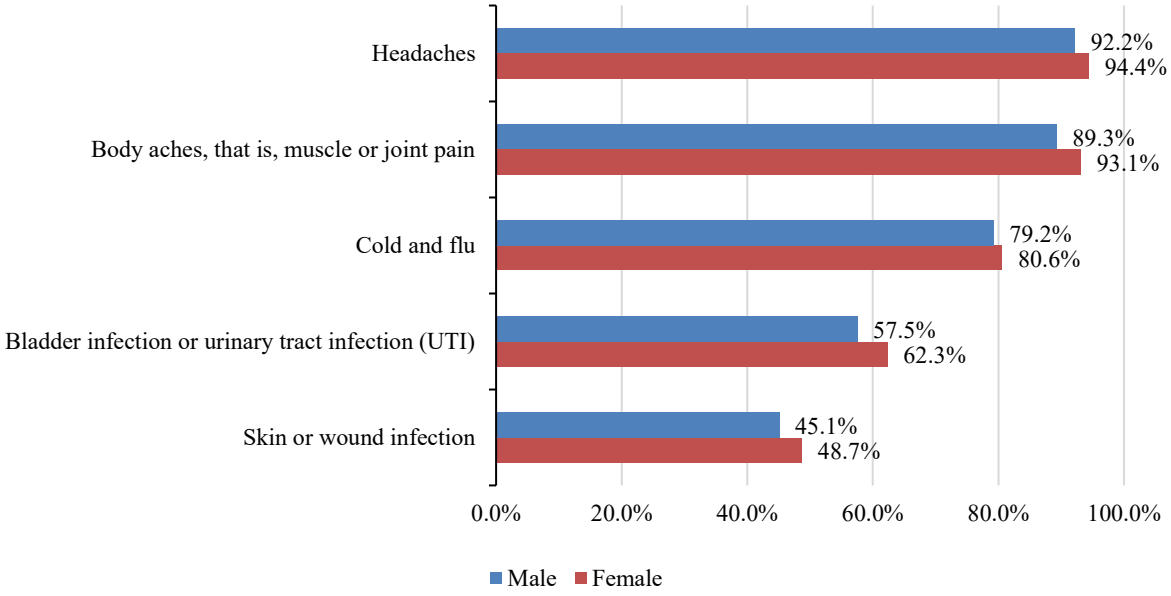
Figure 4.6.4a: Whether respondents correctly indicate if the selected health conditions need to use antibiotics (%)



Base(N): Persons aged 15 and over = 1084.
Question: A16a-e "Do you think these conditions need to use antibiotics?"

Analysed by gender, no statistically significant difference was found in the answers to all of the selected health conditions (Figure 4.6.4b; Table 4.6.4).

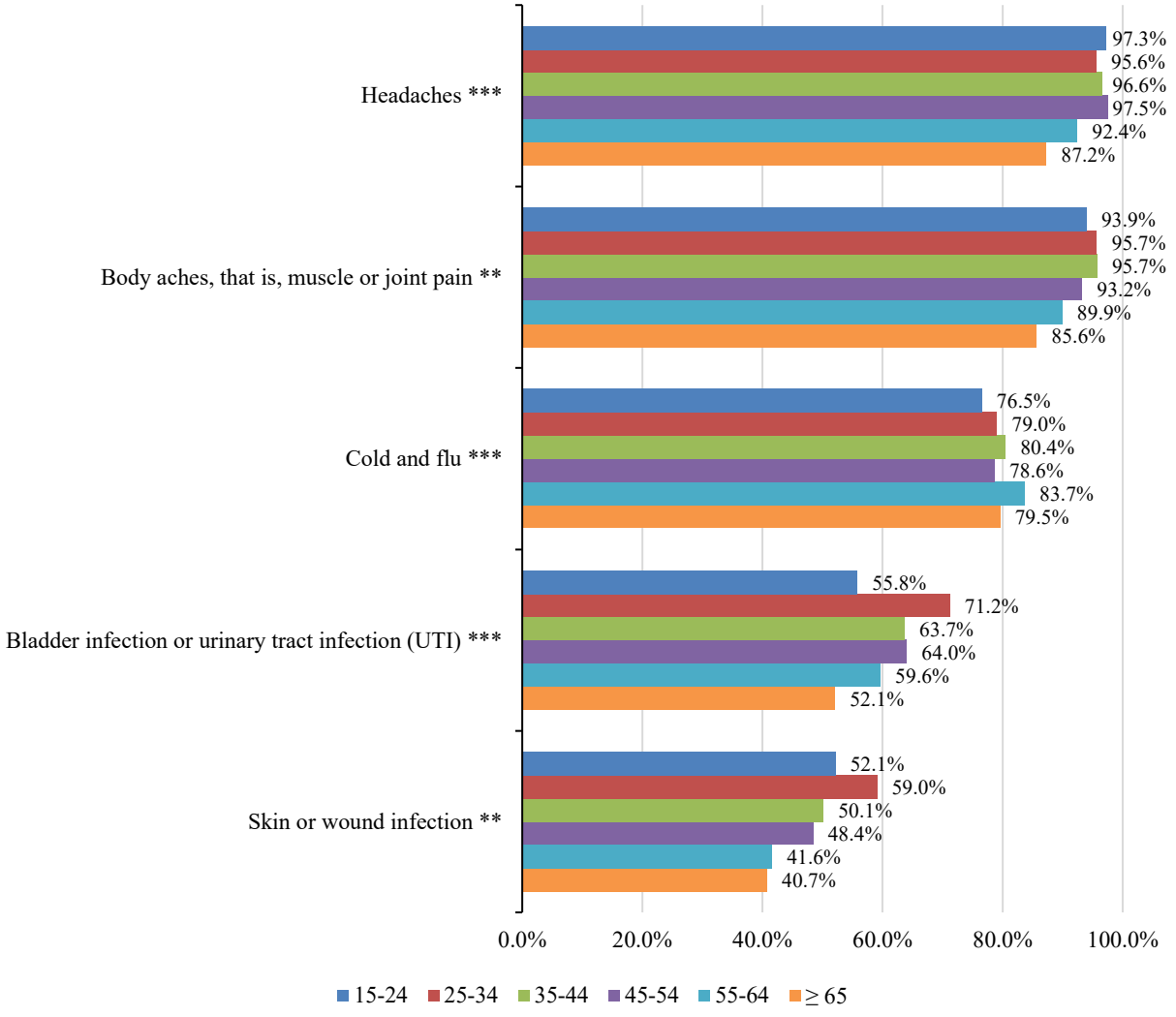
Figure 4.6.4b: Respondents who correctly indicated whether the selected health conditions need to use antibiotics by gender (%)



Base(N): Persons aged 15 and over = 1084.
Question: A16a-e "Do you think these conditions need to use antibiotics?"

Analysed by age, respondents aged 65 or above were less likely to give correct answers to 4 out of the 5 health conditions, while those aged between 15 and 24 were less likely to give correct answer to cold and flu (Figure 4.6.4c; Table 4.6.4).

Figure 4.6.4c: Respondents who correctly indicated whether the selected health conditions need to use antibiotics by age (%)



Base(N): Persons aged 15 and over = 1084.
Question: A16a-e "Do you think these conditions need to use antibiotics?"
*p<0.05, **p<0.01, ***p<0.001

Table 4.6.4: Whether respondents correctly indicate if the selected health conditions need to use antibiotics by gender and age (%)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Bladder infection or urinary tract infection (UTI) (Correct answer: Yes)								
Correct	57.5	62.3	55.8	71.2	63.7	64.0	59.6	52.1
Incorrect	23.2	21.8	30.3	19.6	23.0	24.0	30.5	14.7
Don't know	19.2	15.9	13.9	9.3	13.3	12.0	9.9	33.3
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.220		0.000***					
Cold and flu (Correct answer: No)								
Correct	79.2	80.6	76.5	79.0	80.4	78.6	83.7	79.5
Incorrect	9.6	8.8	19.2	8.4	12.5	11.1	5.3	5.8
Don't know	11.1	10.6	4.3	12.6	7.1	10.3	11.0	14.6
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.847		0.0005***					
Skin or wound infection (Correct answer: Yes)								
Correct	45.1	48.7	52.1	59.0	50.1	48.4	41.6	40.7
Incorrect	40.8	35.2	39.3	31.3	37.4	34.9	42.2	39.4
Don't know	14.1	16.1	8.5	9.6	12.4	16.7	16.3	19.9
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.155		0.009**					
Body aches, that is, muscle or joint pain (Correct answer: No)								
Correct	89.3	93.1	93.9	95.7	95.7	93.2	89.9	85.6
Incorrect	4.7	2.6	4.9	1.8	1.4	4.0	3.0	5.6
Don't know	6.0	4.2	1.2	2.5	2.9	2.8	7.2	8.8
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.065		0.002**					

(To be continued)

Table 4.6.4: Whether respondents correctly indicate if the selected health conditions need to use antibiotics by gender and age (%) (Continued)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Headaches (Correct answer: No)								
Correct	92.2	94.4	97.3	95.6	96.6	97.5	92.4	87.2
Incorrect	2.1	2.5	1.7	2.9	1.3	2.1	2.9	2.6
Don't know	5.8	3.1	1.1	1.5	2.1	0.4	4.6	10.2
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.085		0.000***					

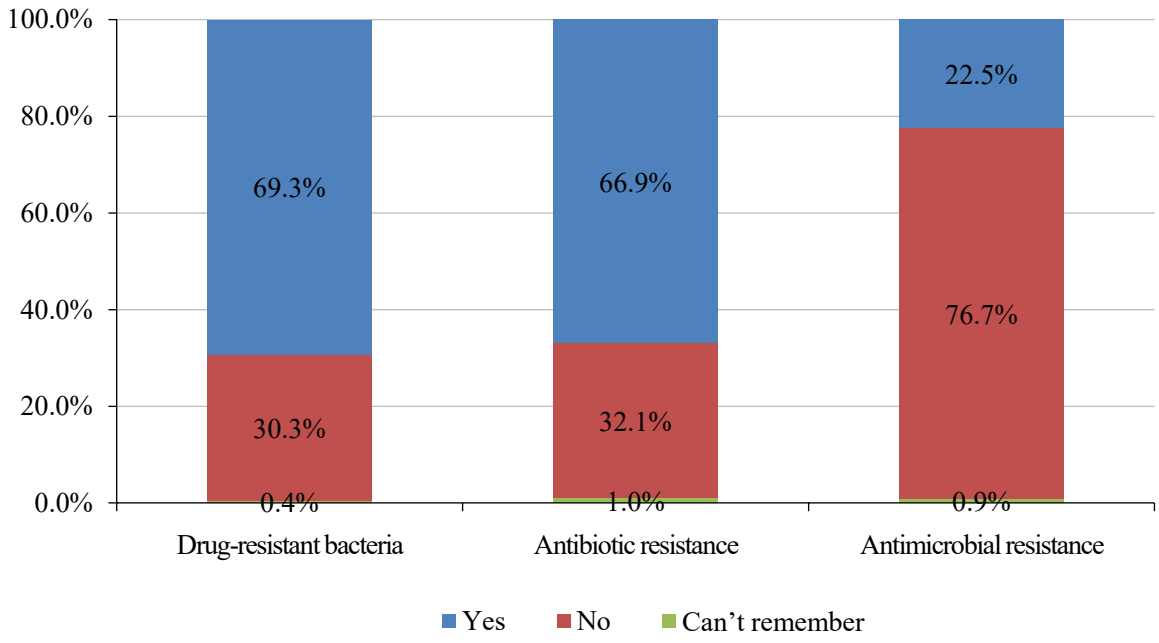
Question: A16a-e "Do you think these conditions need to use antibiotics?"

*p<0.05, **p<0.01, ***p<0.001

4.6.5 Whether respondents had heard of the selected terms related to antimicrobial resistance

All respondents were asked according to the language used during enumeration (i.e. Chinese or English), whether they had heard of the following terms including "Antibiotic resistance" (抗生素耐藥性), "Drug-resistant bacteria" (耐藥性細菌) and "Antimicrobial resistance" (抗菌素耐藥性). Over two-thirds of respondents had heard of "Drug-resistant bacteria" (69.3%) and "Antibiotic resistance" (66.9%). Only 22.5% of respondents had heard of "Antimicrobial resistance" (Figure 4.6.5a).

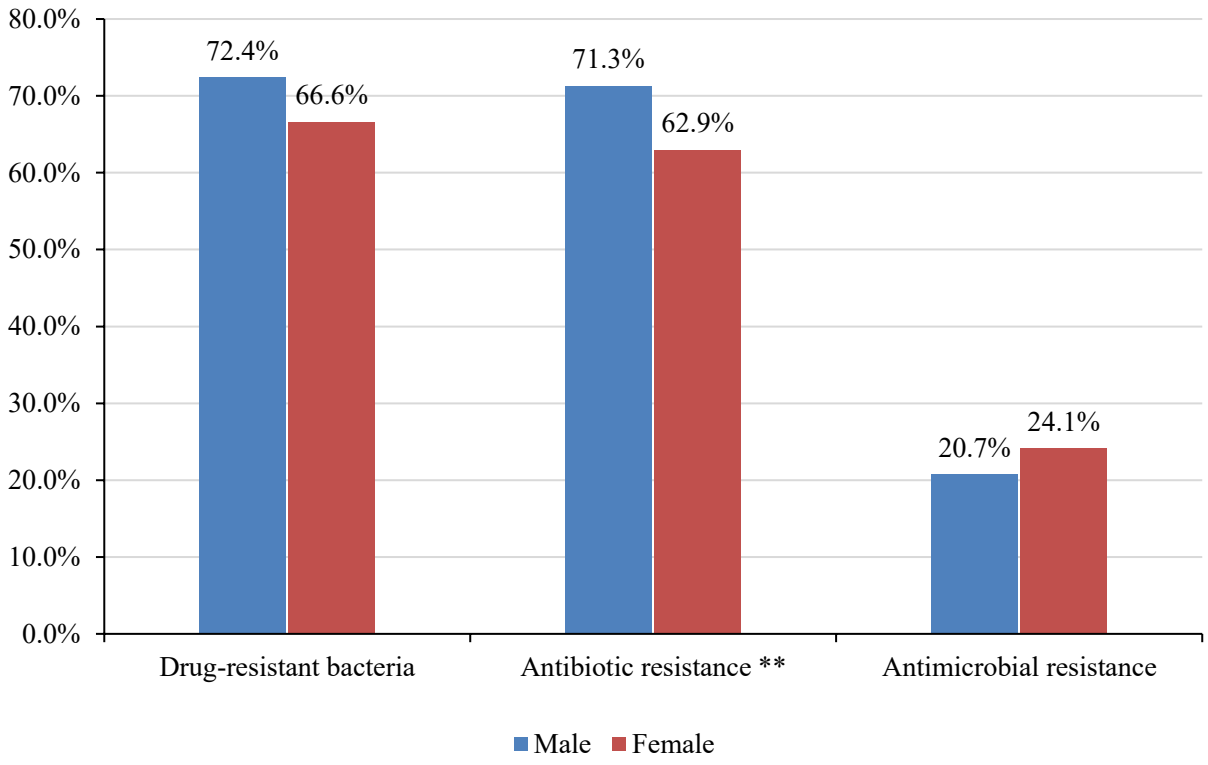
Figure 4.6.5a: Whether respondents had heard of the selected terms related to antimicrobial resistance (%)



Base(N): Persons aged 15 and over = 1084.
Question: A17a-c "Have you heard of any of the following terms?"

Male respondents were more likely to have heard of "Antibiotic resistance". No statistically significant difference was found for the remaining terms (Figure 4.6.5b; Table 4.6.5).

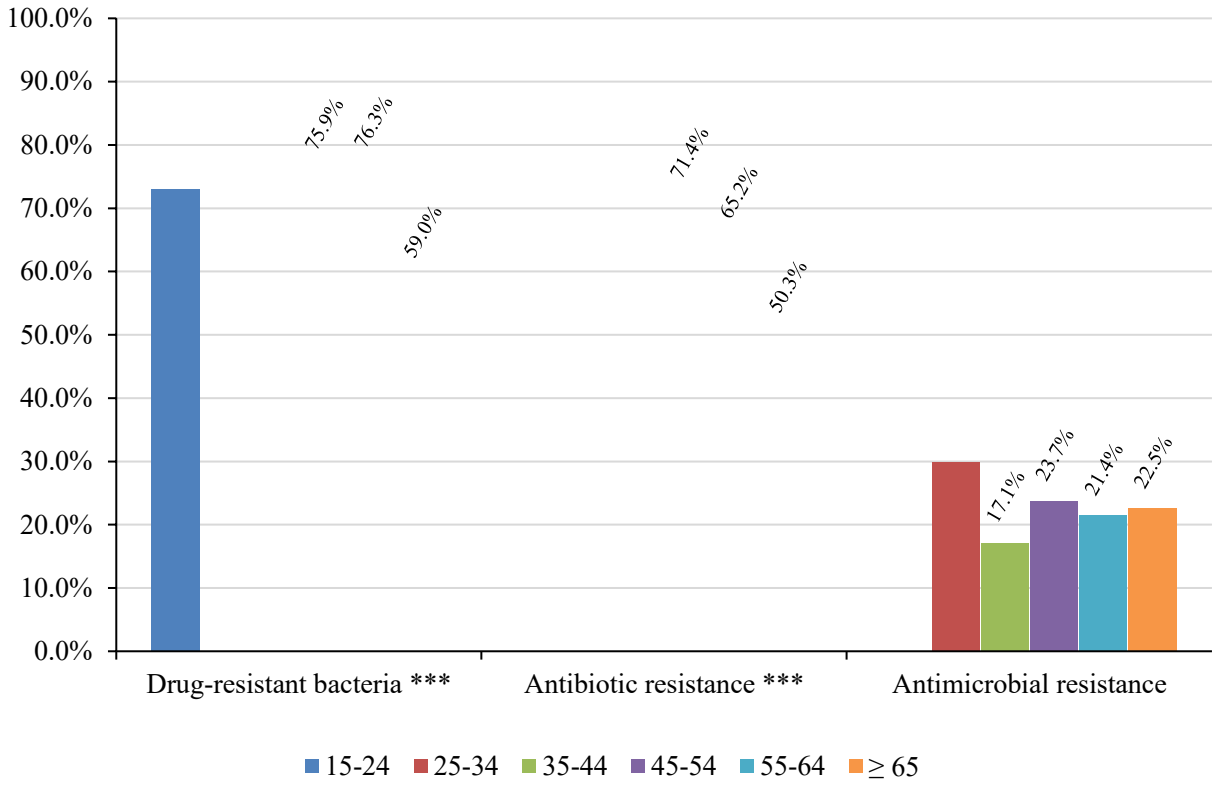
Figure 4.6.5b: Respondents who had heard of the selected terms related to antimicrobial resistance by gender (%)



Base: Persons aged 15 and over = 1084.
Question: A17a-c "Have you heard of any of the following terms?"
*p<0.05, **p<0.01, ***p<0.001

Analysed by age, the percentages of having heard of "Drug-resistant bacteria" and "Antibiotic resistance" among respondents aged 65 or above were the lowest. There was no statistically significant difference between age groups for "Antimicrobial resistance" (Figure 4.6.5c; Table 4.6.5).

Figure 4.6.5c: Respondents who had heard of the selected terms related to antimicrobial resistance by age (%)



Base: Persons aged 15 and over = 1084.
Question: A17a-c "Have you heard of any of the following terms?"
*p<0.05, **p<0.01, ***p<0.001

Table 4.6.5: Whether respondents had heard of the selected terms related to antimicrobial resistance by gender and age (%)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Drug-resistant bacteria								
Yes	72.4	66.6	73.1	73.1	67.0	75.9	76.3	59.0
No	27.3	33.0	26.9	26.9	33.0	23.5	23.7	40.0
Can't remember	0.3	0.5	0.0	0.0	0.0	0.6	0.0	1.0
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value(Chi-Square)	0.111		0.000998***					
Antibiotic resistance								
Yes	71.3	62.9	86.0	82.6	69.2	71.4	65.2	50.3
No	28.3	35.4	14.0	17.4	29.6	28.1	34.8	46.8
Can't remember	0.4	1.6	0.0	0.0	1.1	0.5	0.0	2.9
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value(Chi-Square)	0.004**		0.000***					
Antimicrobial resistance								
Yes	20.7	24.1	20.9	29.9	17.1	23.7	21.4	22.5
No	78.5	75.0	79.1	69.4	82.5	75.8	77.4	75.9
Can't remember	0.8	0.9	0.0	0.7	0.4	0.5	1.1	1.5
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value(Chi-Square)	0.407		0.351					

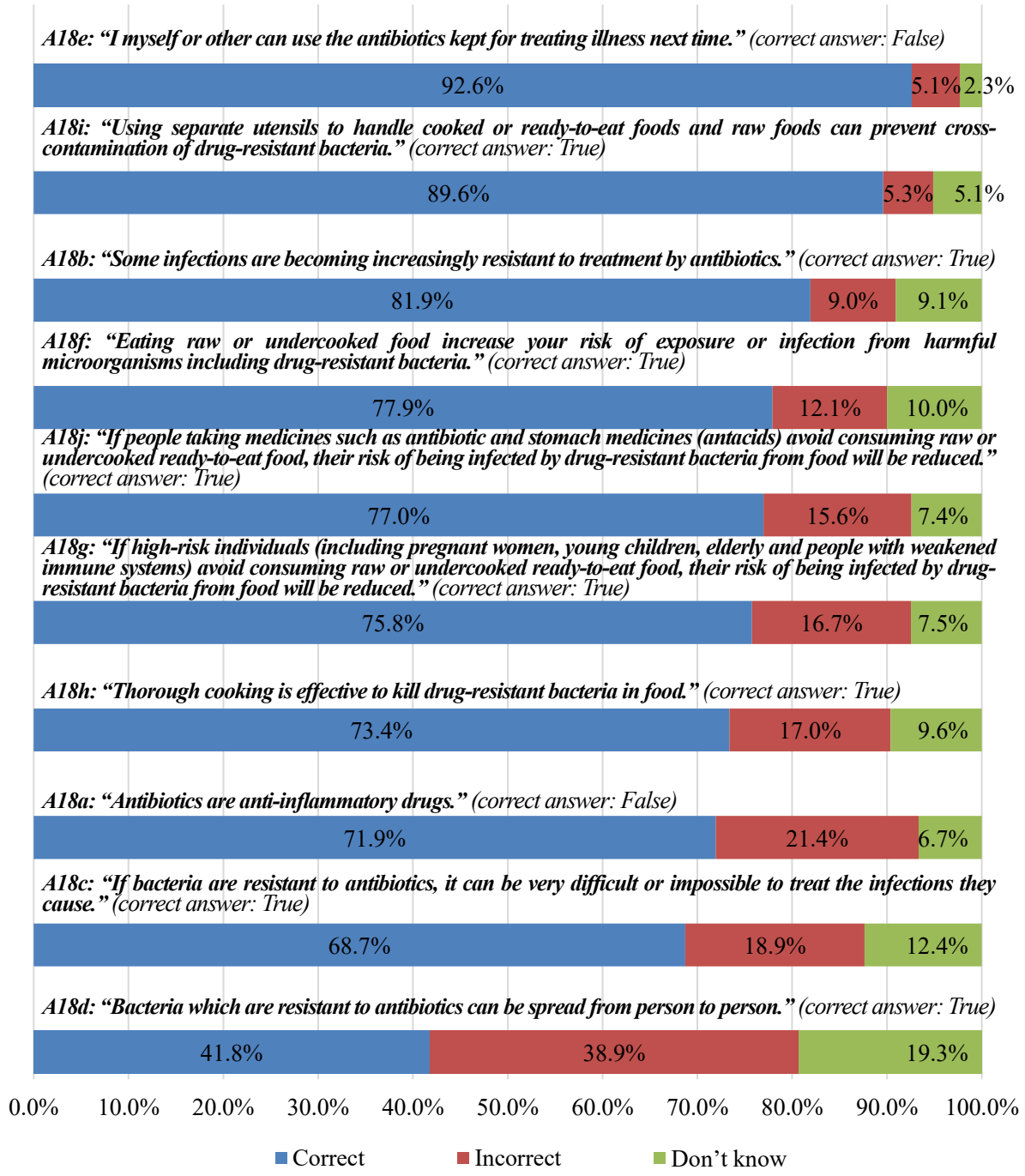
Question: A17a-c "Have you heard of any of the following terms?"
*p<0.05, **p<0.01, ***p<0.001

4.6.6 Statements about antibiotic resistance

All respondents were asked whether the selected statements about antibiotic resistance were true or false. The percentages of respondents who could provide the correct answers are listed below:

a. I myself or other can use the antibiotics kept for treating illness next time (False: 92.6%);
b. Using separate utensils to handle cooked or ready-to-eat foods and raw foods can prevent cross-contamination of drug-resistant bacteria (True: 89.6%);
c. Some infections are becoming increasingly resistant to treatment by antibiotics (True: 81.9%);
d. Eating raw or undercooked food increase your risk of exposure or infection from harmful microorganisms including drug-resistant bacteria (True: 77.9%);
e. If people taking medicines such as antibiotic and stomach medicines (antacids) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced (True: 77.0%);
f. If high-risk individuals (including pregnant women, young children, elderly and people with weakened immune systems) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced (True: 75.8%);
g. Thorough cooking is effective to kill drug-resistant bacteria in food (True: 73.4%);
h. Antibiotics are anti-inflammatory drugs (False: 71.9%);
i. If bacteria are resistant to antibiotics, it can be very difficult or impossible to treat the infections they cause (True: 68.7%); and
j. Bacteria which are resistant to antibiotics can be spread from person to person (True: 41.8%) (Figure 4.6.6a).

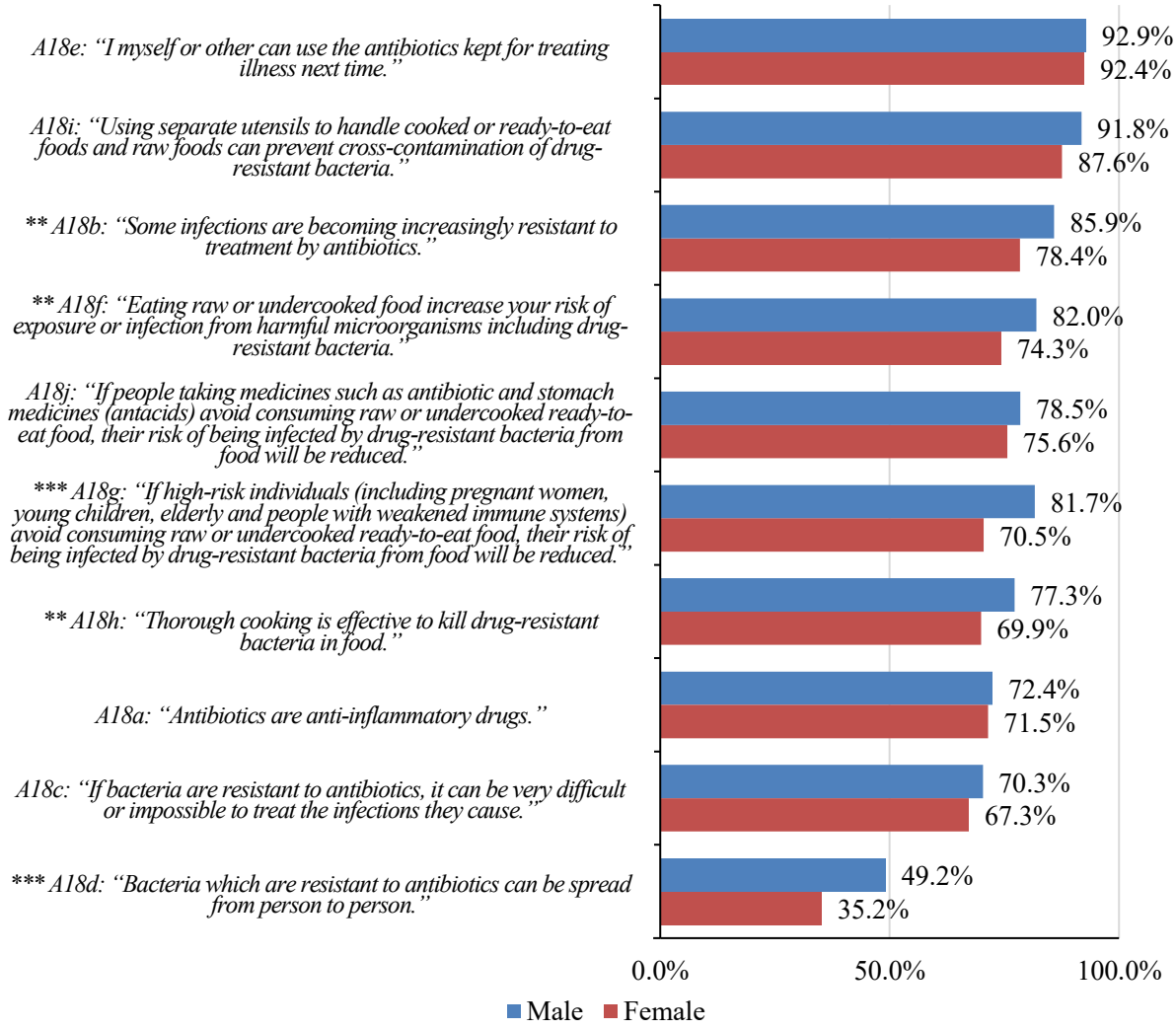
Figure 4.6.6a: Whether respondents correctly indicated if the selected statements about antibiotic resistance were true or false (%)



Base: Persons aged 15 and over = 1084.
Question: A18a-j "Please indicate whether you think the following statements are 'true' or 'false'."

Analysed by gender, male respondents were more likely to provide correct answers for five of the statements, including "Some infections are becoming increasingly resistant to treatment by antibiotics", "Bacteria which are resistant to antibiotics can be spread from person to person" and three other statements related to the risk of AMR in food. There was no statistically significant difference between genders in the remaining statements (Figure 4.6.6b; Table 4.6.6).

Figure 4.6.6b: Respondents who correctly indicated whether the selected statements about antibiotic resistance were true or false by gender (%)



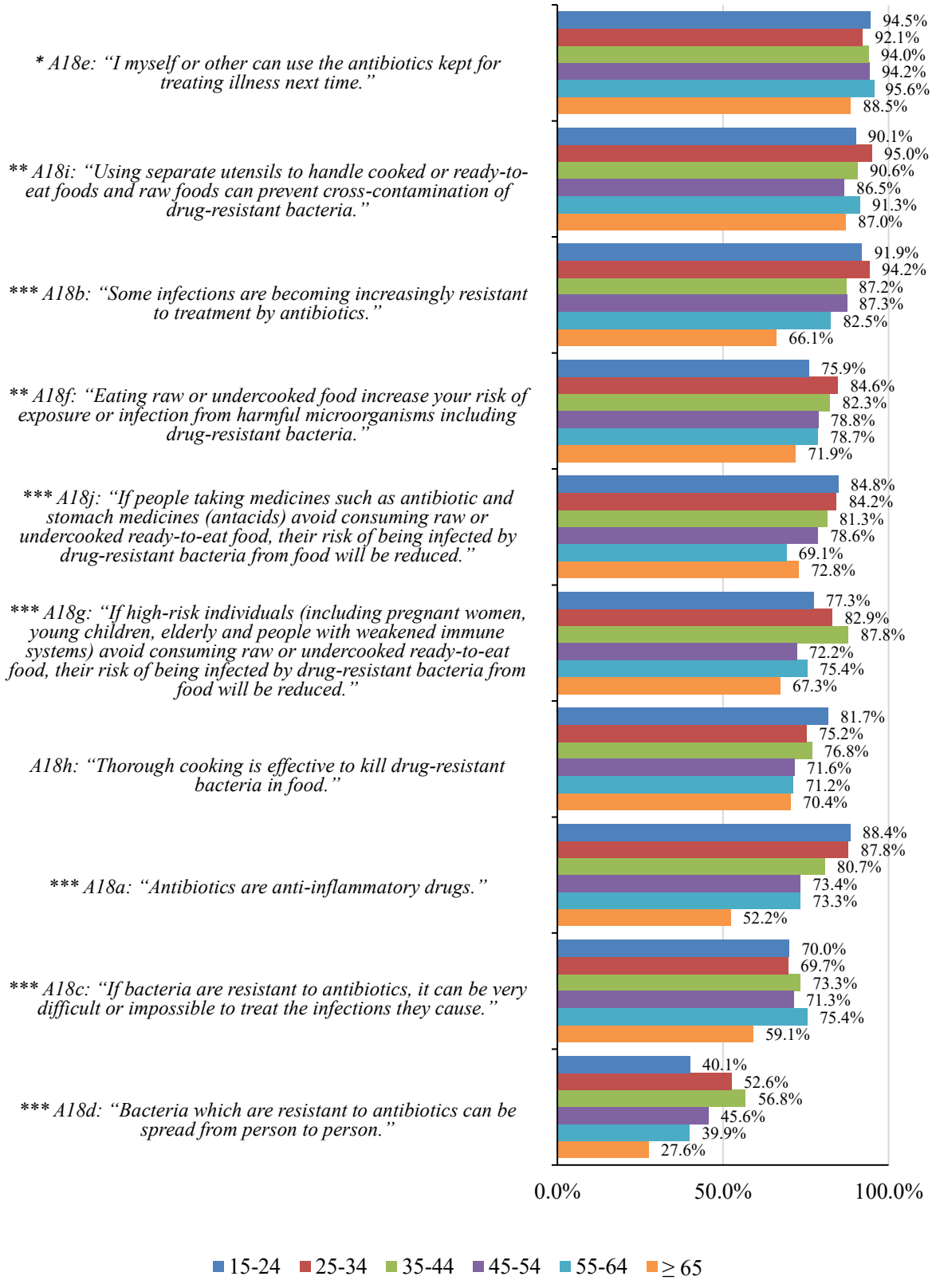
Base: Persons aged 15 and over = 1084.
Question: A18a-j "Please indicate whether you think the following statements are 'true' or 'false'."
*p<0.05, **p<0.01, ***p<0.001

Analysed by age, statistically significant differences were observed in 9 out of 10 statements. Those aged 65 or above were generally less likely to provide correct answers to the selected statements. Those aged 45 to 54 and 55 to 64 each had the lowest percentage of correct answers for a particular statement.

More specifically, those aged 65 or above had the lowest percentage of correct answers to 7 statements, including “I myself or other can use the antibiotics kept for treating illness next time”, “Some infections are becoming increasingly resistant to treatment by antibiotics”, “Eating raw or undercooked food increase your risk of exposure or infection from harmful microorganisms including drug-resistant bacteria”, “If high-risk individuals (including pregnant women, young children, elderly and people with weakened immune systems) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced”, “Antibiotics are anti-inflammatory drugs”, “If bacteria are resistant to antibiotics, it can be very difficult or impossible to treat the infections they cause” and “Bacteria which are resistant to antibiotics can be spread from person to person”.

Those aged 55 to 64 had the lowest percentage of correct responses to the statement “If people taking medicines such as antibiotic and stomach medicines (antacids) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced”. Meanwhile, those aged 45 to 54 had the lowest percentage of correct answer to the statement “Using separate utensils to handle cooked or ready-to-eat foods and raw foods can prevent cross-contamination of drug-resistant bacteria”. As for the statement “Thorough cooking is effective to kill drug-resistant bacteria in food”, no significant difference was observed between age groups (Figure 4.6.6c; Table 4.6.6).

Figure 4.6.6c: Respondents who correctly indicated whether the selected statements about antibiotic resistance were true or false by age (%)



Base: Persons aged 15 and over = 1084.
Question: A18a-j "Please indicate whether you think the following statements are 'true' or 'false'."
*p<0.05, **p<0.01, ***p<0.001

Table 4.6.6: Whether respondents correctly indicated if the selected statements about antibiotic resistance were true or false by gender and age (%)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Antibiotics are anti-inflammatory drugs (correct answer: False)								
Correct	72.4	71.5	88.4	87.8	80.7	73.4	73.3	52.2
Incorrect	20.0	22.7	11.6	11.0	15.3	20.4	22.5	32.8
Don't know	7.6	5.9	0.0	1.2	4.0	6.2	4.1	15.0
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.345		0.000***					
Some infections are becoming increasingly resistant to treatment by antibiotics (correct answer: True)								
Correct	85.9	78.4	91.9	94.2	87.2	87.3	82.5	66.1
Incorrect	6.5	11.2	6.5	4.0	9.4	6.1	12.7	11.2
Don't know	7.6	10.4	1.6	1.8	3.4	6.5	4.8	22.7
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.005**		0.000***					
If bacteria are resistant to antibiotics, it can be very difficult or impossible to treat the infections they cause (correct answer: True)								
Correct	70.3	67.3	70.0	69.7	73.3	71.3	75.4	59.1
Incorrect	19.1	18.8	25.4	24.5	20.6	20.8	15.6	14.3
Don't know	10.6	14.0	4.6	5.8	6.0	7.9	9.1	26.6
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.228		0.000***					
Bacteria which are resistant to antibiotics can be spread from person to person (correct answer: True)								
Correct	49.2	35.2	40.1	52.6	56.8	45.6	39.9	27.6
Incorrect	30.3	46.6	52.2	40.3	31.3	38.2	44.7	34.9
Don't know	20.6	18.2	7.8	7.1	11.9	16.2	15.5	37.6
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.000***		0.000***					

(To be continued)

Table 4.6.6: Whether respondents correctly indicated if the selected statements about antibiotic resistance were true or false by gender and age (%) (Continued)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
I myself or other can use the antibiotics kept for treating illness next time (correct answer: False)								
Correct	92.9	92.4	94.5	92.1	94.0	94.2	95.6	88.5
Incorrect	4.4	5.6	4.4	7.9	4.1	3.5	3.7	6.3
Don't know	2.7	1.9	1.1	0.0	1.9	2.3	0.6	5.1
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.492		0.013*					
Eating raw or undercooked food increase your risk of exposure or infection from harmful microorganisms including drug-resistant bacteria (correct answer: True)								
Correct	82.0	74.3	75.9	84.6	82.3	78.8	78.7	71.9
Incorrect	9.3	14.6	19.1	11.1	10.8	10.8	12.2	11.7
Don't know	8.7	11.1	5.0	4.2	6.9	10.5	9.1	16.4
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.008**		0.002**					
If high-risk individuals (including pregnant women, young children, elderly and people with weakened immune systems) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced (correct answer: True)								
Correct	81.7	70.5	77.3	82.9	87.8	72.2	75.4	67.3
Incorrect	11.6	21.3	20.5	12.8	8.7	21.8	20.1	16.8
Don't know	6.7	8.2	2.2	4.2	3.5	6.0	4.5	16.0
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.000***		0.000***					

(To be continued)

Table 4.6.6: Whether respondents correctly indicated if the selected statements about antibiotic resistance were true or false by gender and age (%) (Continued)

	GENDER		AGE					
	Male	Female	15-24	25-34	35-44	45-54	55-64	≥ 65
Thorough cooking is effective to kill drug-resistant bacteria in food (correct answer: True)								
Correct	77.3	69.9	81.7	75.2	76.8	71.6	71.2	70.4
Incorrect	12.9	20.7	14.2	18.3	15.0	19.1	19.1	15.7
Don't know	9.9	9.4	4.1	6.6	8.2	9.3	9.7	13.9
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.003**		0.158					
Using separate utensils to handle cooked or ready-to-eat foods and raw foods can prevent cross-contamination of drug-resistant bacteria (correct answer: True)								
Correct	91.8	87.6	90.1	95.0	90.6	86.5	91.3	87.0
Incorrect	3.9	6.5	9.9	2.6	4.7	8.7	3.3	4.6
Don't know	4.3	5.9	0.0	2.4	4.7	4.8	5.4	8.4
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.065		0.004**					
If people taking medicines such as antibiotic and stomach medicines (antacids) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced (correct answer: True)								
Correct	78.5	75.6	84.8	84.2	81.3	78.6	69.1	72.8
Incorrect	14.2	16.9	14.2	11.7	13.7	17.1	22.3	13.5
Don't know	7.4	7.5	1.1	4.1	5.0	4.3	8.5	13.7
Sample size	(511)	(573)	(96)	(139)	(173)	(180)	(199)	(296)
p-value (Chi-Square)	0.455		0.000***					

Question: A18a-j "Please indicate whether you think the following statements are 'true' or 'false'."
*p<0.05, **p<0.01, ***p<0.001

5. Further Analysis and Discussion

5.1 Comparative Analysis with Previous Results[2]

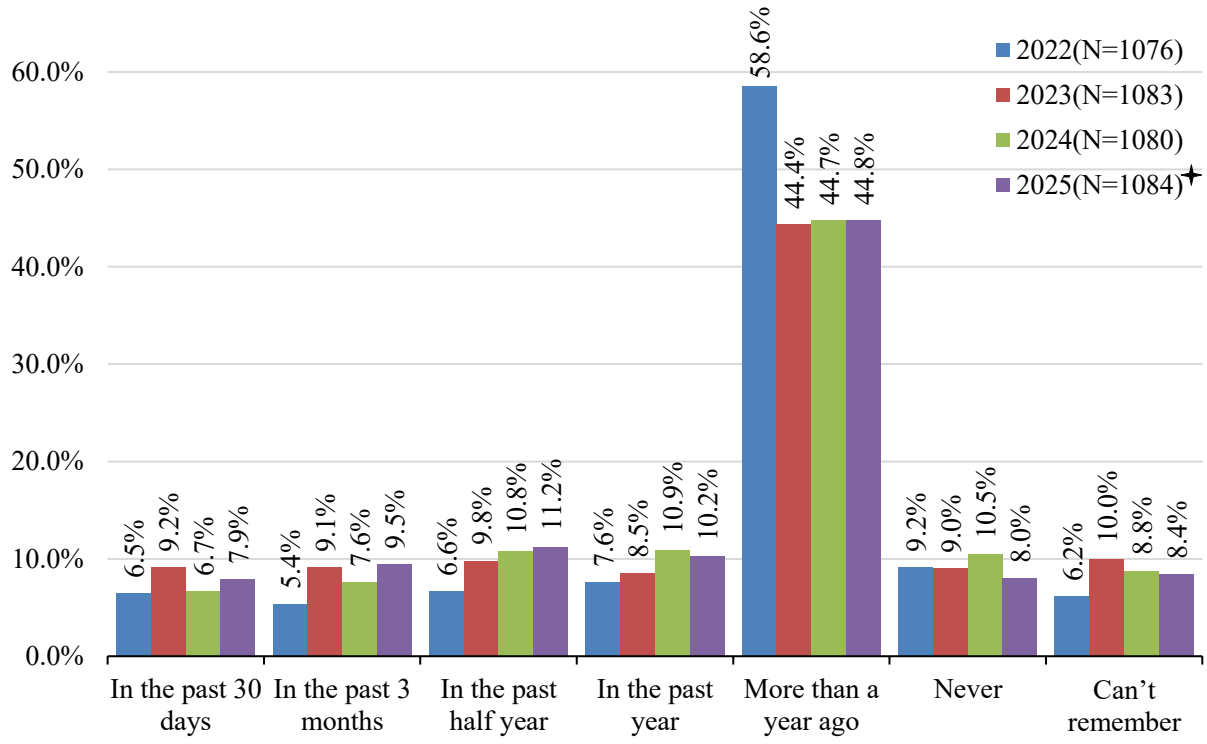
In this chapter, the 2025 survey results are compared with those from the 2024 and the baseline year (2022, or 2023 for questions first introduced in that year). Findings that are statistically significant at the 5% level are examined in detail within the text.

[2] Caution should be taken when comparing the results of the question on whether the selected health conditions needed to use antibiotics, as the similar question (a13) in the 2022 survey asked whether the selected health conditions could be treated with antibiotics, which is not worded exactly the same as the question (a16) from 2023 onwards.

5.1.1 Time of last taken antibiotics

The proportion of respondents who had taken antibiotics in the past 12 months before enumeration in 2025 (38.9%) increased by 12.8 percentage points compared with 2022 (26.1%). The 2025 results are statistically significantly different from 2022, but not significantly different from 2024 (Figure 5.1.1).

Figure 5.1.1: Time of last taken antibiotics by year (%)

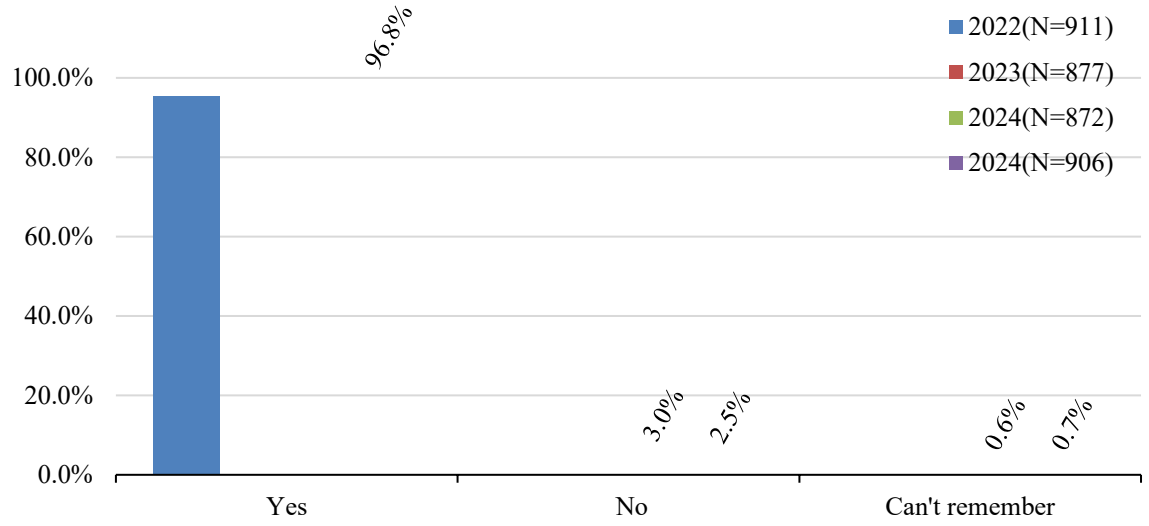


Base(N): Persons aged 15 and over.
Question: A1 "When did you last take antibiotics?"
Note: ✦ There was a significant difference between 2025 and 2022 (***p<0.001).

5.1.2 Whether the last taken antibiotics were prescribed by doctors

As to whether the last taken antibiotics were prescribed by doctors, the results for 2025 showed no statistically significant difference from 2024 or 2022 (Figure 5.1.2a).

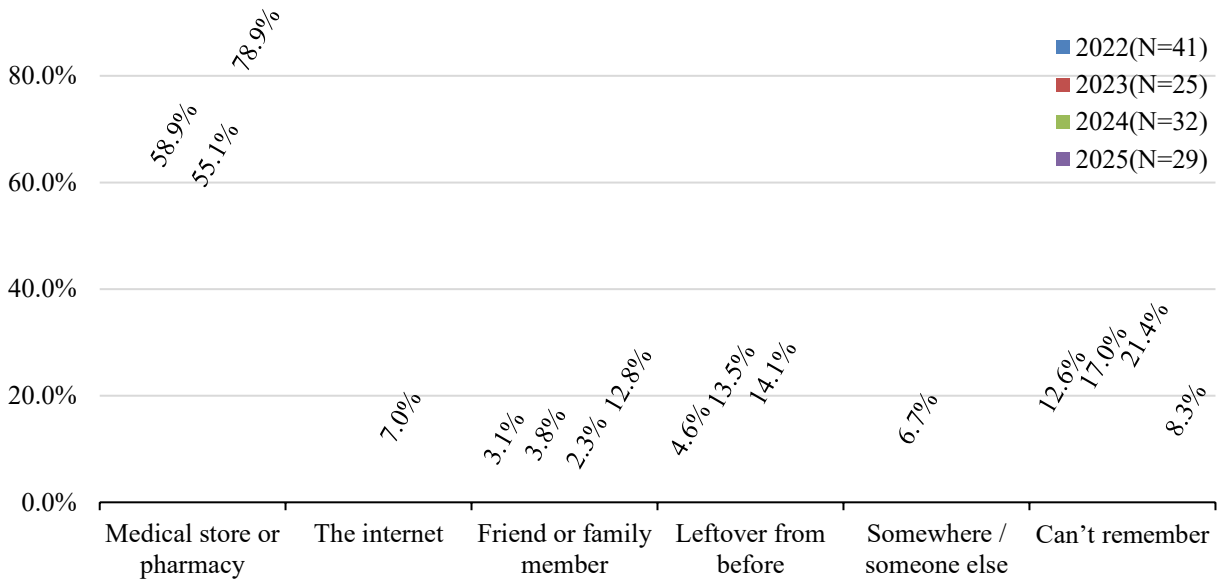
Figure 5.1.2a: Whether the last taken antibiotics were prescribed by doctors by year (%)



Base(N): Persons aged 15 and over who had taken antibiotics.
Question in 2022 and 2023: A2 “On that occasion, were the antibiotics prescribed by doctors?”
Question in 2024 and 2025: A2 “On that occasion, were the antibiotics prescribed by doctors (including dentists)?”

Among respondents whose last taken antibiotics were not or could not remember if prescribed by doctors, medical store or pharmacy (78.9%) continued to be the main source of their last taken antibiotics in 2025. These results, however, should be interpreted with caution given the insufficient sample size (Figure 5.1.2b).

Figure 5.1.2b: Source of last taken antibiotics for those whose last taken antibiotics were not or could not remember if prescribed by doctors by year (%)

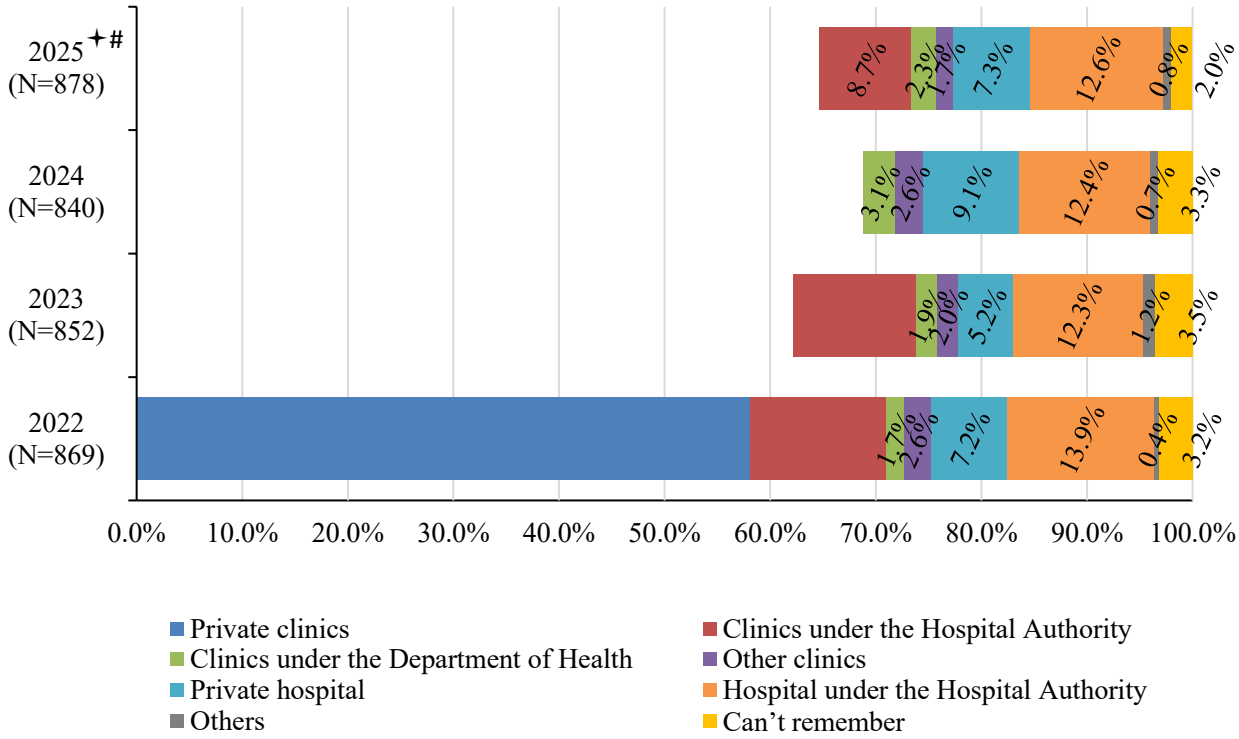


Base(N): Persons aged 15 and over whose last taken antibiotics were not prescribed by doctors or who could not remember whether they were prescribed by doctors.
Question: A3 "On that occasion, where did you get the antibiotics?"
Note: Due to the insufficient sample size, statistical testing was deemed inapplicable.

5.1.3 Type of clinic or hospital from where respondents received the last taken antibiotics

For those whose last taken antibiotics were prescribed by doctors, statistically significant differences were observed between 2022 and 2025, as well as between 2024 and 2025, in the type of clinic or hospital from which they obtained the last taken antibiotics. The percentage of respondents who obtained the last taken antibiotics from a private clinic in 2025 (64.7%) was higher than in 2022 (58.1%) and in 2024 (56.6%) (Figure 5.1.3).

Figure 5.1.3: Type of clinic or hospital respondents got the last taken antibiotics from by year (%)

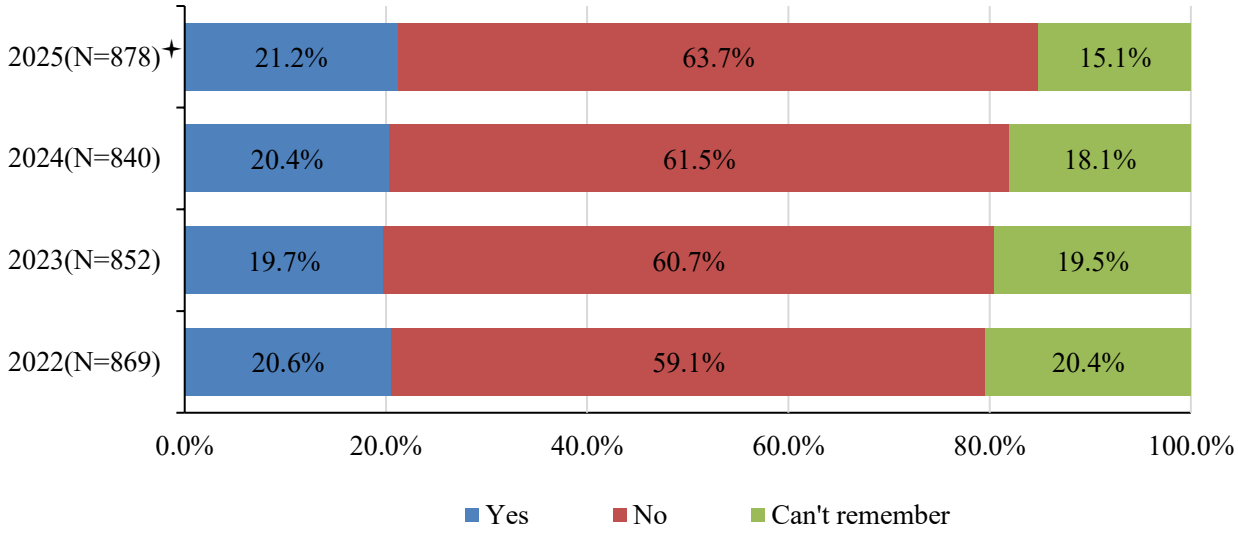


Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors.
Question: A4 "On that occasion, from which type of clinic or hospital did you get the antibiotics?"
Note: # There was a significant difference between 2025 and 2024 (*p<0.05); + There was a significant difference between 2025 and 2022 (*p<0.05).

5.1.4 Whether respondents noticed the health advice on antibiotics medicine bags and found it helpful

As to whether respondents whose last taken antibiotics were prescribed by doctors noticed the advice on the medicine bags, the 2025 survey (noticed: 21.2%; not noticed: 63.7%) showed statistically significant difference from the 2022 survey (noticed: 20.6%; not noticed: 59.1%). There was no statistically significant difference between 2025 and 2024 (Figure 5.1.4a).

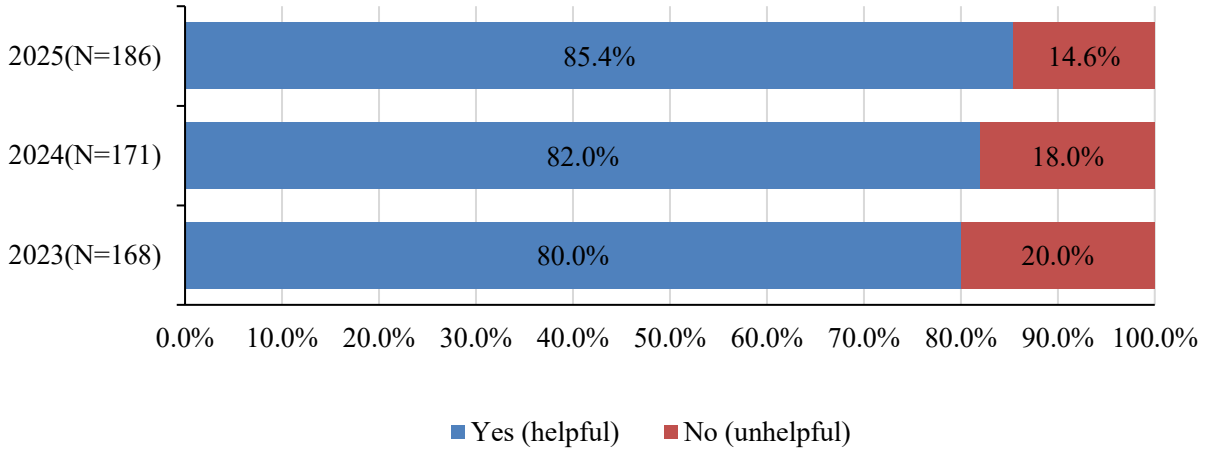
Figure 5.1.4a: Whether respondents noticed the advice on antibiotics medicine bags by year (%)



Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors.
Question in 2022–2024: A5 "On that occasion, did you notice there are instructions on personal hygiene on the antibiotics medicine bags?"
Question in 2025: A5 "On that occasion, did you notice there is advice on personal hygiene on the antibiotics medicine bags?"
Note: + There was a significant difference between 2025 and 2022 (*p<0.05).

As to whether the advice on antibiotics medicine bags was helpful in reminding respondents to be aware of and to maintain personal hygiene, the 2025 survey showed no statistically significant difference from the 2023 or the 2024 surveys (Figure 5.1.4b).

Figure 5.1.4b: Whether the advice on antibiotics medicine bags helpful to remind respondents to be aware of and maintain personal hygiene by year (%)

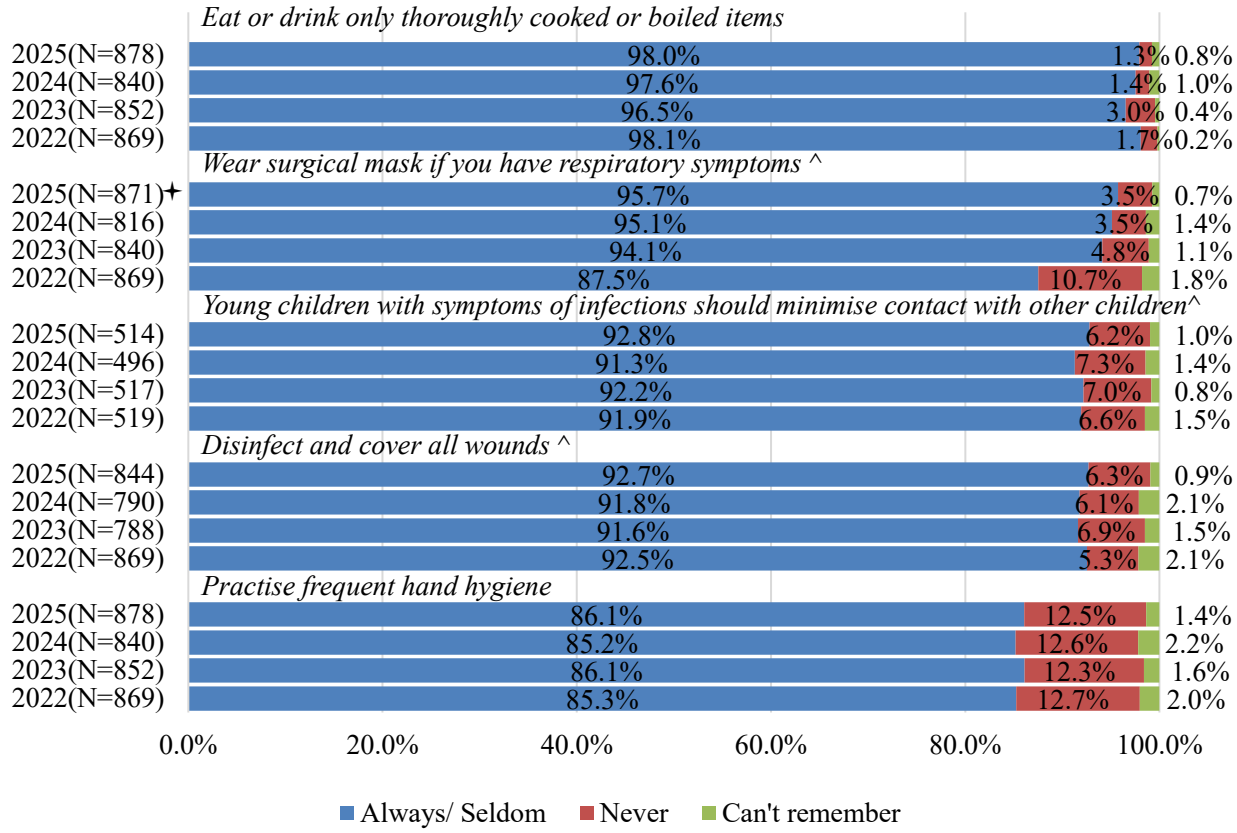


Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors and have noticed the advice on personal hygiene on the antibiotics medicine bags.
Question in 2022–2024: A6 "Were these instructions helpful to remind you to be aware of and maintain personal hygiene?"
Question in 2025: A6 "Was the advice helpful to remind you to be aware of and maintain personal hygiene?"

5.1.5 Frequency of practising the health advice during the last medication period

Among those whose antibiotics last taken were prescribed by doctors, the proportion of always or seldom wearing surgical masks when they have respiratory symptoms when handling or taking antibiotics in daily life during the last medication period increased from 87.5% (always: 72.3%; seldom: 15.2%) in 2022 to 95.7% (always: 75.5%; seldom: 20.2%) in 2025. The results for 2025 showed statistically significant differences compared with 2022, but no significant differences when compared with 2024. No statistically significant difference was found in other health advice (Figure 5.1.5).

Figure 5.1.5: Frequency of practising the health advice during the last medication period by year (%)



Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors.
Question: A7a-e "On that occasion, how often did you practise the following when you handled or took antibiotics in your daily life during the medication period?"

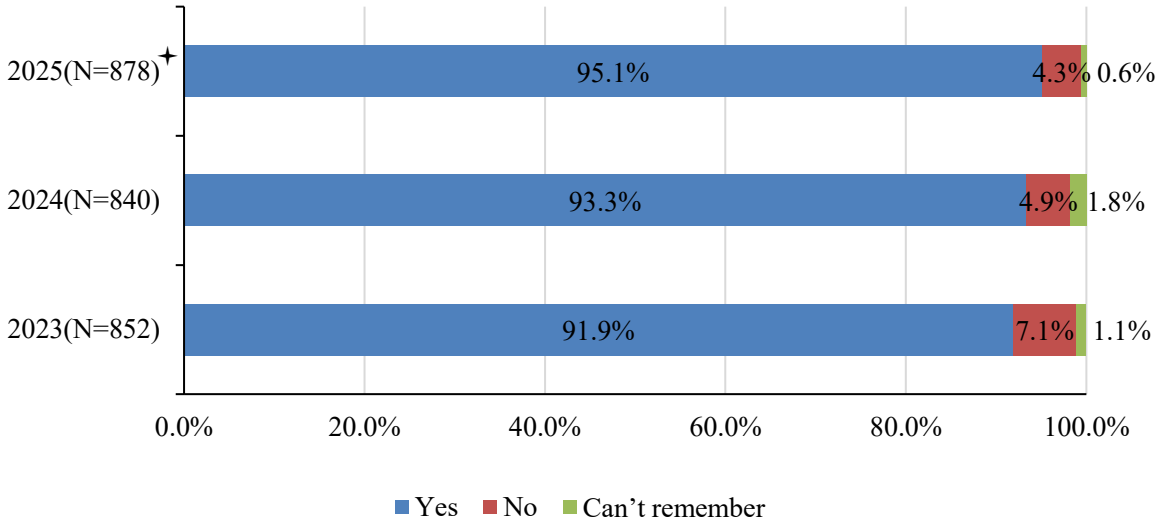
Note: ^Those with no respiratory symptoms/no wounds/no young children at home were excluded respectively; +There was a significant difference between 2025 and 2022 (***p<0.001).

5.1.6 Whether respondents completed the whole course of treatment as instructed by doctor

5.1.6.1 Whether respondents completed the whole course of treatment

As to whether those whose last taken antibiotics were prescribed by doctor completed the whole course of treatment as instructed by doctor, a higher proportion of respondents completed the whole course of treatment in 2025 (95.1%) compared with 2023 (91.9%). No statistically significant difference was observed between 2024 and 2025 (Figure 5.1.6.1).

Figure 5.1.6.1: Whether respondents completed the whole course of treatment as instructed by doctor by year (%)

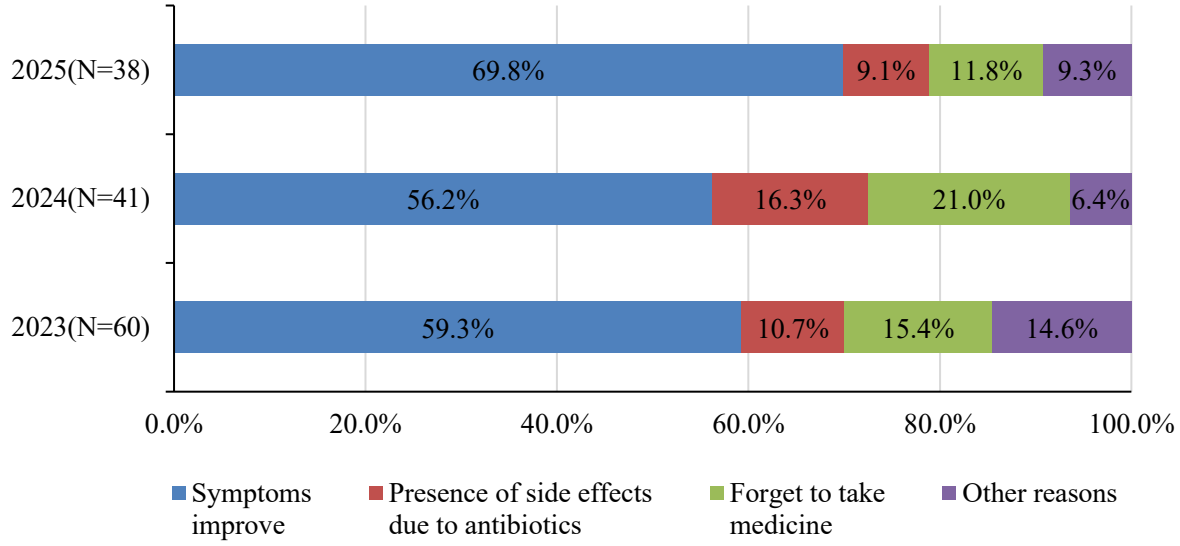


Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors.
Question: A8 "On that occasion, did you complete the whole course of treatment as instructed by doctor?"
Note: + There was a significant difference between 2025 and 2023 (*p<0.05).

5.1.6.2 Reasons for not completing the whole course of treatment

For those who did not complete the whole course of treatment as instructed by doctor, improvement of symptoms remained to be the most common reason. The results for 2025 showed no significant difference from 2023 or 2024 (Figure 5.1.6.2).

Figure 5.1.6.2: Reasons for not completing the whole course of treatment by year (%)

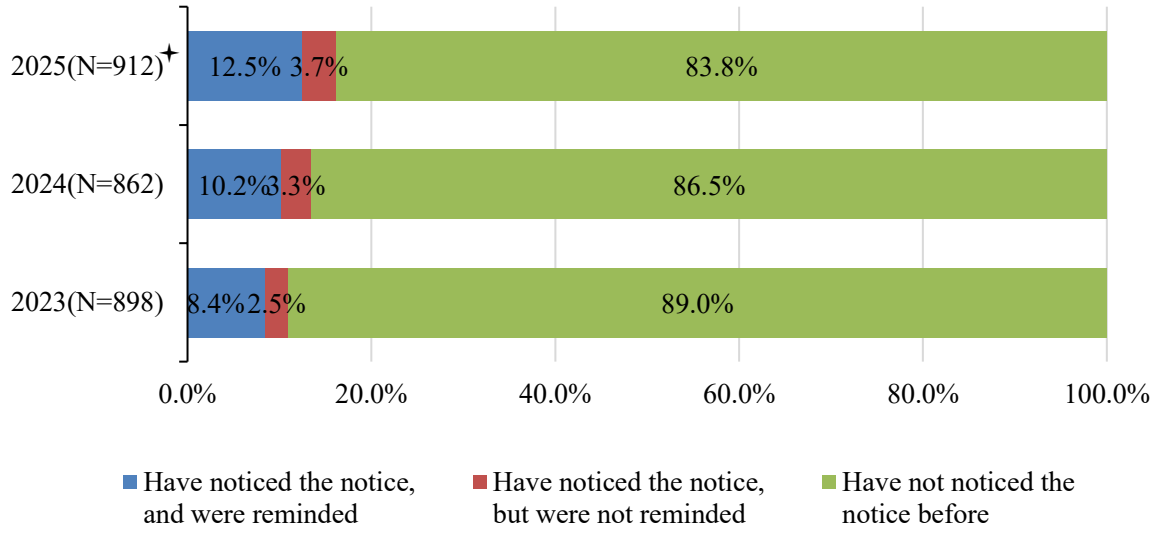


Base(N): Persons aged 15 and over whose last taken antibiotics were prescribed by doctors and did not complete the whole course of treatment as instructed by doctor.
Question: A9 “The main reason that you did not complete the whole course of treatment is:”

5.1.7 Notices about "Do not purchase antibiotics without a prescription" posted at community pharmacies

As to whether respondents had noticed the notices about "Do not purchase antibiotics without a prescription" posted at community pharmacies, and if so, whether they found the notice helpful to remind them not to purchase antibiotics without doctor's prescription, a higher proportion of respondents had noticed the notice and were reminded in 2025 (12.5%) compared with 2023 (8.4%). No significant difference was observed between 2025 and 2024 (Figure 5.1.7).

Figure 5.1.7: Whether respondents noticed the notices posted at community pharmacies and found them useful by year (%)



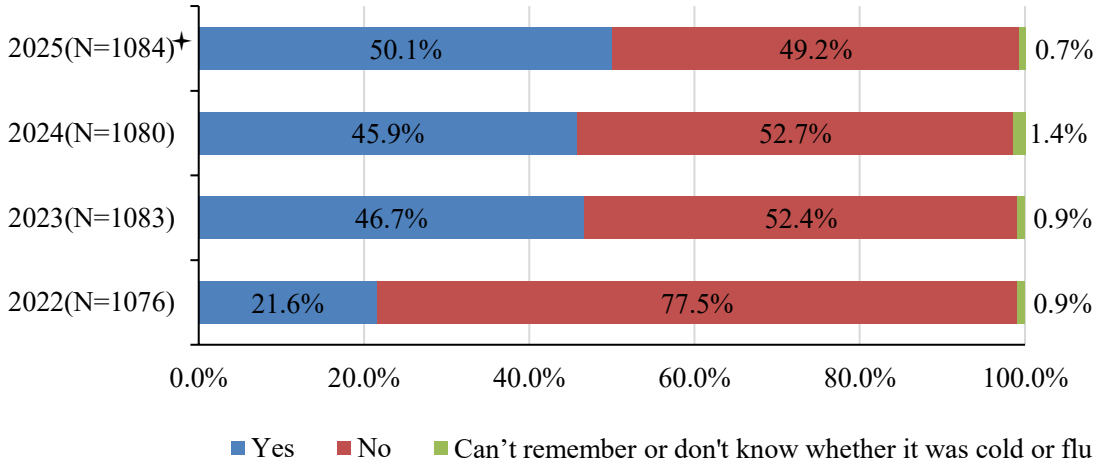
Base(N): Persons aged 15 and over who have been to pharmacies and remember whether they have noticed the notice about 'Do not purchase antibiotics without a prescription'.
Question: A10"Some people might have seen notices about 'Do not purchase antibiotics without a prescription' posted at community pharmacies. On last visit to community pharmacy, did you see this notice? If yes, did the notice help to remind you not to purchase antibiotics without doctor's prescription?"
Note: ✦ There was a significant difference between 2025 and 2023 (**p<0.01).

5.1.8 Whether respondents had consulted doctor(s) for cold or flu and requested antibiotics in the past 12 months

5.1.8.1 Whether respondents had consulted doctor(s) for cold or flu in the past 12 months

Respondents who had consulted doctors for cold or flu in the past 12 months markedly increased from 21.6% in 2022 to 50.1% in 2025. The results for 2025 were statistically significantly different from 2022, but not significantly different from 2024 (Figure 5.1.8.1).

Figure 5.1.8.1: Whether respondents had consulted doctor(s) for cold or flu in the past 12 months by year (%)

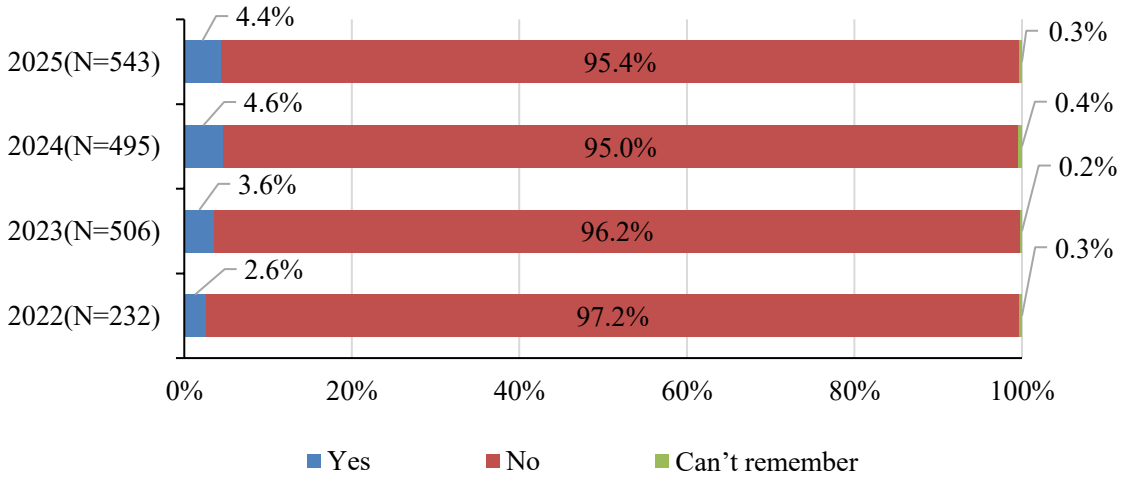


Base(N): Persons aged 15 and over.
Question: A11"In the past 12 months, had you consulted doctor(s) for cold or flu?"
Note:✦There was a significant difference between 2025 and 2022 (***p<0.001).

5.1.8.2 Whether respondents had asked for antibiotics during the last medical consultation for cold or flu

As to whether respondents had asked for antibiotics during the last medical consultation for cold or flu, the results for 2025 were not statistically significantly different from those in 2022 or 2024 (Figure 5.1.8.2).

Figure 5.1.8.2: Whether respondents had asked for antibiotics during the last medical consultation for cold or flu by year (%)

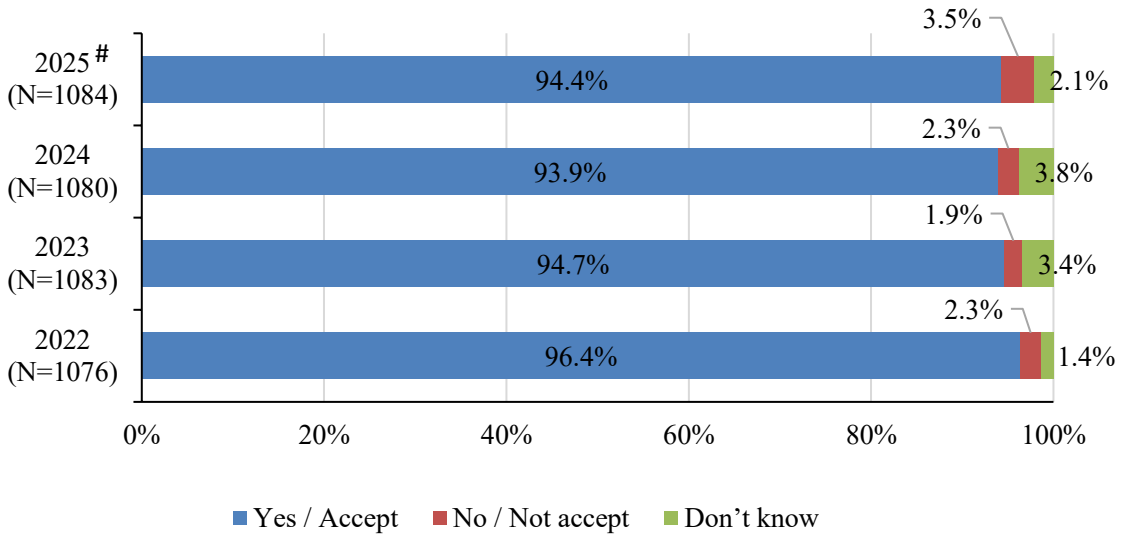


Base(N): Persons aged 15 and over who had consulted a doctor for cold or flu in the past 12 months.
Question: A12"Had you asked for antibiotics during that consultation?"

5.1.9 Whether respondents would accept the doctor's advice to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics or not

When doctor's initial assessment indicated that antibiotic was not needed at the moment, the proportion of respondents who would accept the doctor's advice to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics increased from 93.9% in 2024 to 94.4% in 2025. The results for 2025 were statistically significantly different from 2024, but not significantly different from 2022 (Figure 5.1.9).

Figure 5.1.9: Whether respondents would accept the doctor's advice to observe for few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics or not by year (%)

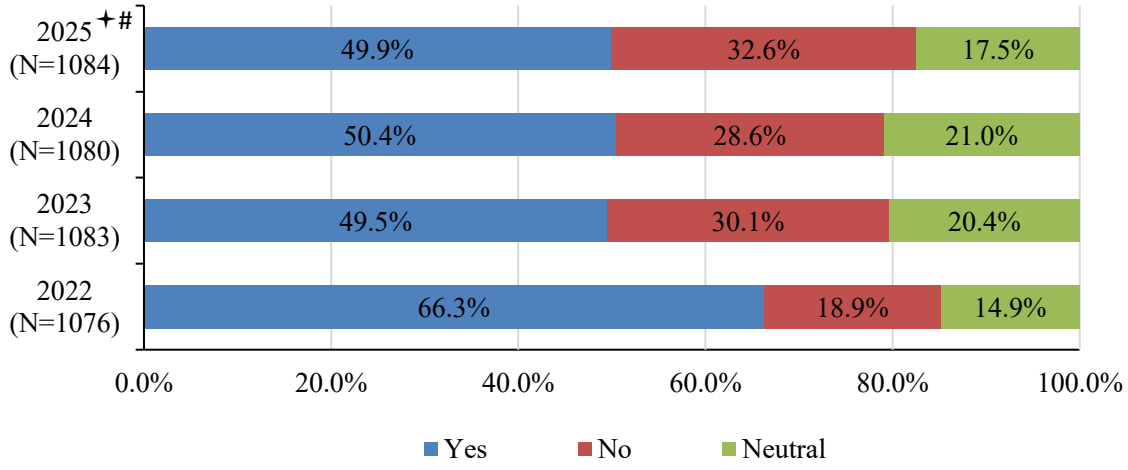


Base(N): Persons aged 15 and over.
Question: A13 "When you consult a doctor and his / her initial assessment for you indicated that antibiotic is not needed at the moment, would you accept if the doctor tells you to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics or not?"
Note: # There was a significant difference between 2025 and 2024 (*p<0.05).

5.1.10 Whether respondents wanted doctors to share decision making with them on antibiotics prescription

With respect to whether respondents wanted doctors to share decision making with them on antibiotics prescription, a higher proportion of respondents indicated "no" in 2025. The results for 2025 (wanted: 49.9%; did not want: 32.6%) were statistically significantly different from those in 2022 (wanted: 66.3%; did not want: 18.9%) and 2024 (wanted: 50.4%; did not want: 28.6%) (Figure 5.1.10).

Figure 5.1.10: Whether respondents wanted doctors to share decision making with them on antibiotics prescription by year (%)

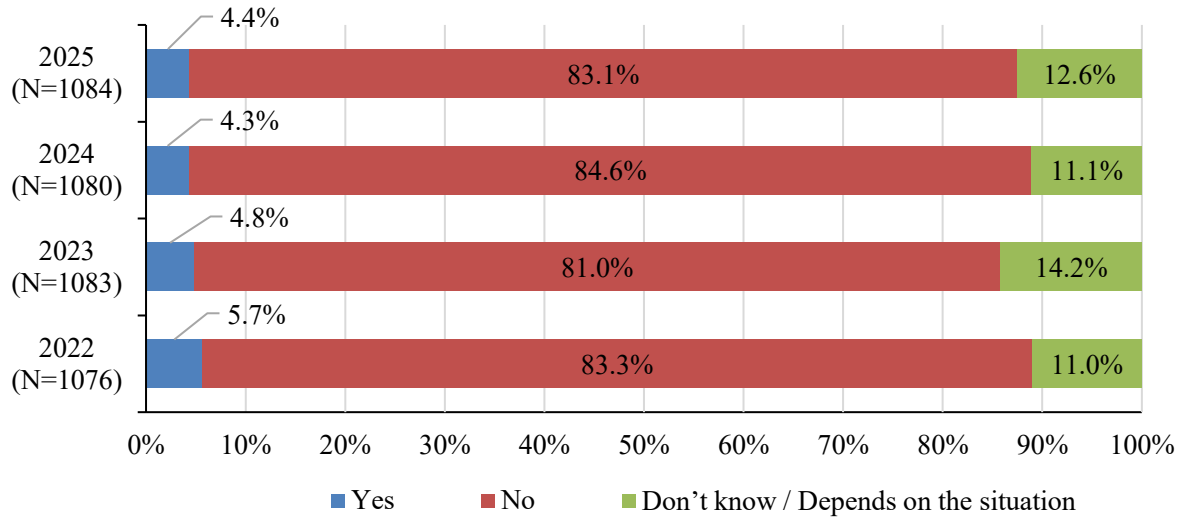


Base(N): Persons aged 15 and over.
Question: A14 "Do you want your doctor to share decision making with you on antibiotics prescription?"
Note: +There was a significant difference between 2025 and 2022 (***p<0.001); # There was a significant difference between 2025 and 2024 (*p<0.05).

5.1.11 Whether respondents preferred consulting doctors who would prescribe antibiotics more readily

As to whether respondents preferred consulting doctors who would prescribe antibiotics more readily, no statistically significant difference was found between 2022 and 2025, or between 2024 and 2025 (Figure 5.1.11).

Figure 5.1.11: Whether respondents preferred consulting doctors who would prescribe antibiotics more readily by year (%)



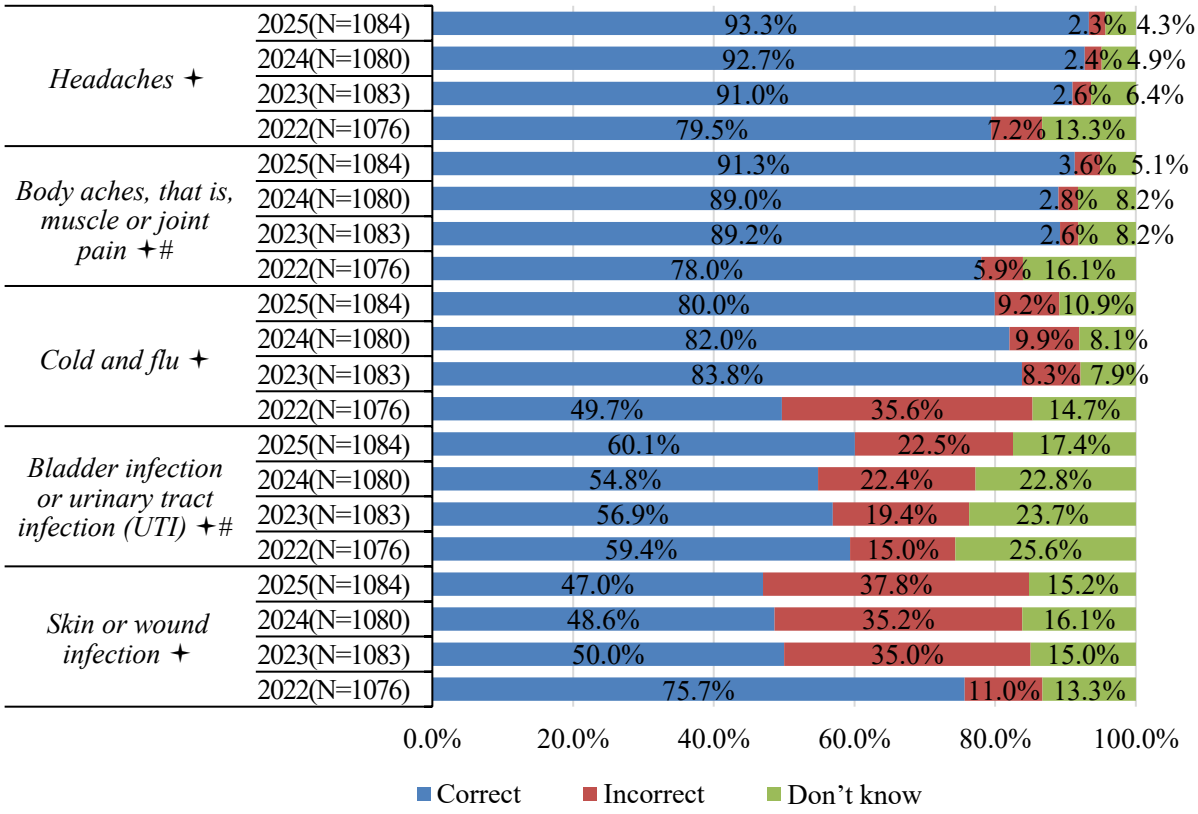
Base(N): Persons aged 15 and over.
Question: A15 "Do you prefer consulting doctors who prescribe antibiotics more readily?"

5.1.12 Whether respondents thought the selected health conditions need to use antibiotics

As to whether the selected health conditions need to be treated with antibiotics, the percentages of correct answers to bladder infection or urinary tract infection (UTI), cold and flu, body aches and headaches increased from 59.4%, 49.7%, 78.0% and 79.5% in 2022 to 60.1%, 80.0%, 91.3% and 93.3% in 2025 respectively, while the percentage of correct answers to skin or wound infection decreased from 75.7% in 2022 to 47.0% in

2025. All conditions showed statistically significant difference compared with 2022, but only body aches and bladder infection or urinary tract infection (UTI) showed significant differences compared with 2024, with the percentages of correct answer increasing from 89.0% and 54.8% in 2024 to 91.3% and 60.1% in 2025, respectively (Figure 5.1.12).

Figure 5.1.12: Whether respondents correctly indicated if the selected health conditions need to use^ antibiotics by year (%)

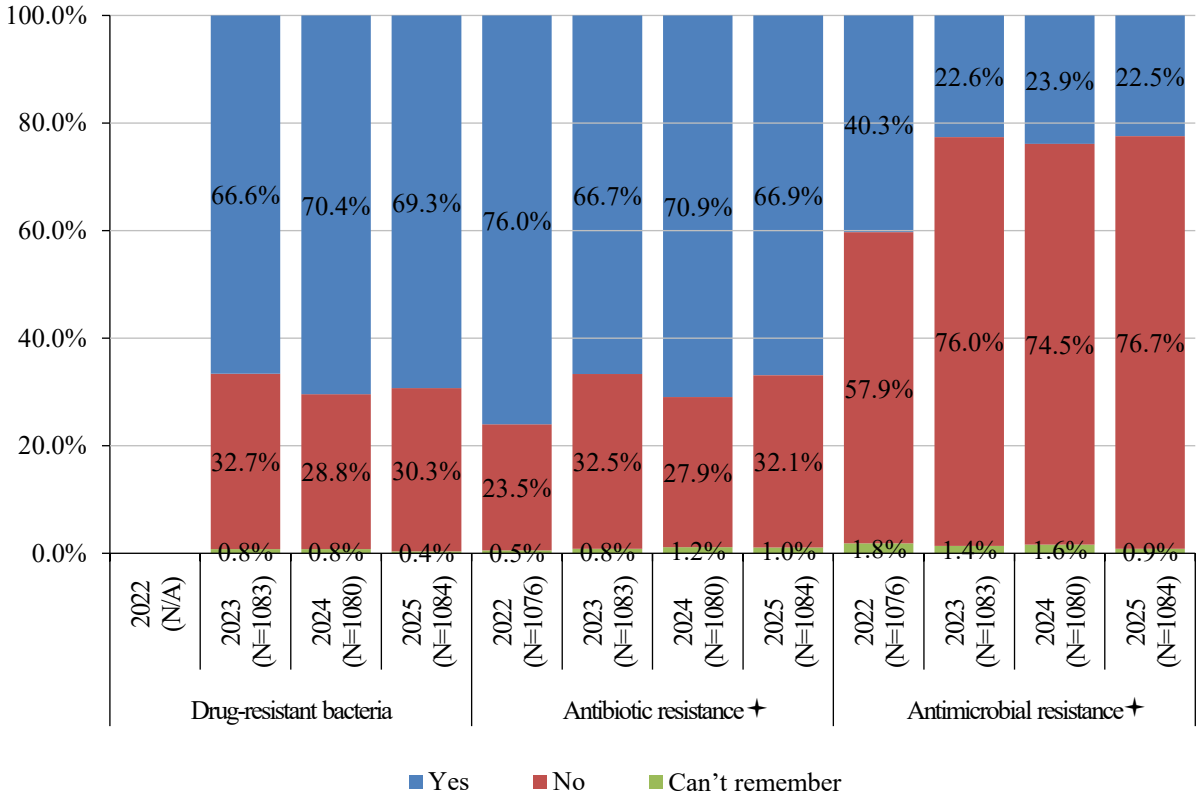


Base(N): Persons aged 15 and over.
Question in 2022: A13a-h "Do you think these conditions can be treated with antibiotics?"
Question in 2023–2025: A16a-e "Do you think these conditions need to use antibiotics?"
Note: ✦There was a significant difference between 2025 and 2022 (***p<0.001); #There was a significant difference between 2025 and 2024 (**p<0.01); ^Comparisons should be made with caution, as certain question wordings have been revised since 2023 and, in 2025, the option "Body aches" was relabelled as "Body aches, that is, muscle or joint pain".

5.1.13 Whether respondents had heard of the selected terms related to antimicrobial resistance

Statistically significant differences between 2022 and 2025 results were observed in the proportion of respondents who had heard of "Antibiotic resistance" and "Antimicrobial resistance": the percentage dropped respectively from 76.0% and 40.3% in 2022 to 66.9% and 22.5% in 2025. When compared with results in 2024, no significant difference was observed (Figure 5.1.13).

Figure 5.1.13: Whether respondents had heard of the selected terms related to antimicrobial resistance by year (%)

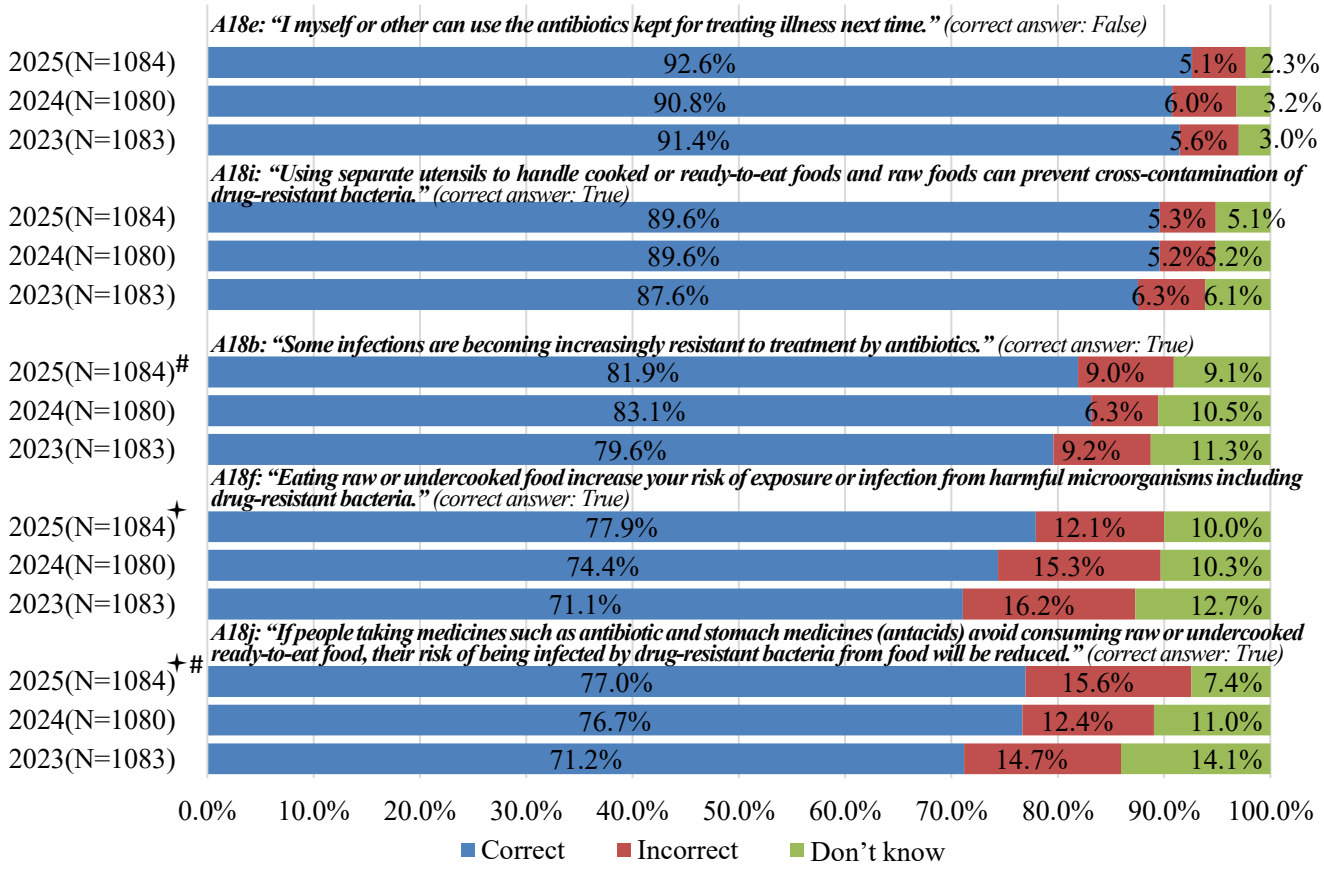


Base(N): Persons aged 15 and over.
Question: A17a-c "Have you heard of any of the following terms?"
Note: ✦ There was a significant difference between 2025 and 2022 (***p<0.001).

5.1.14 Statements about antibiotic resistance

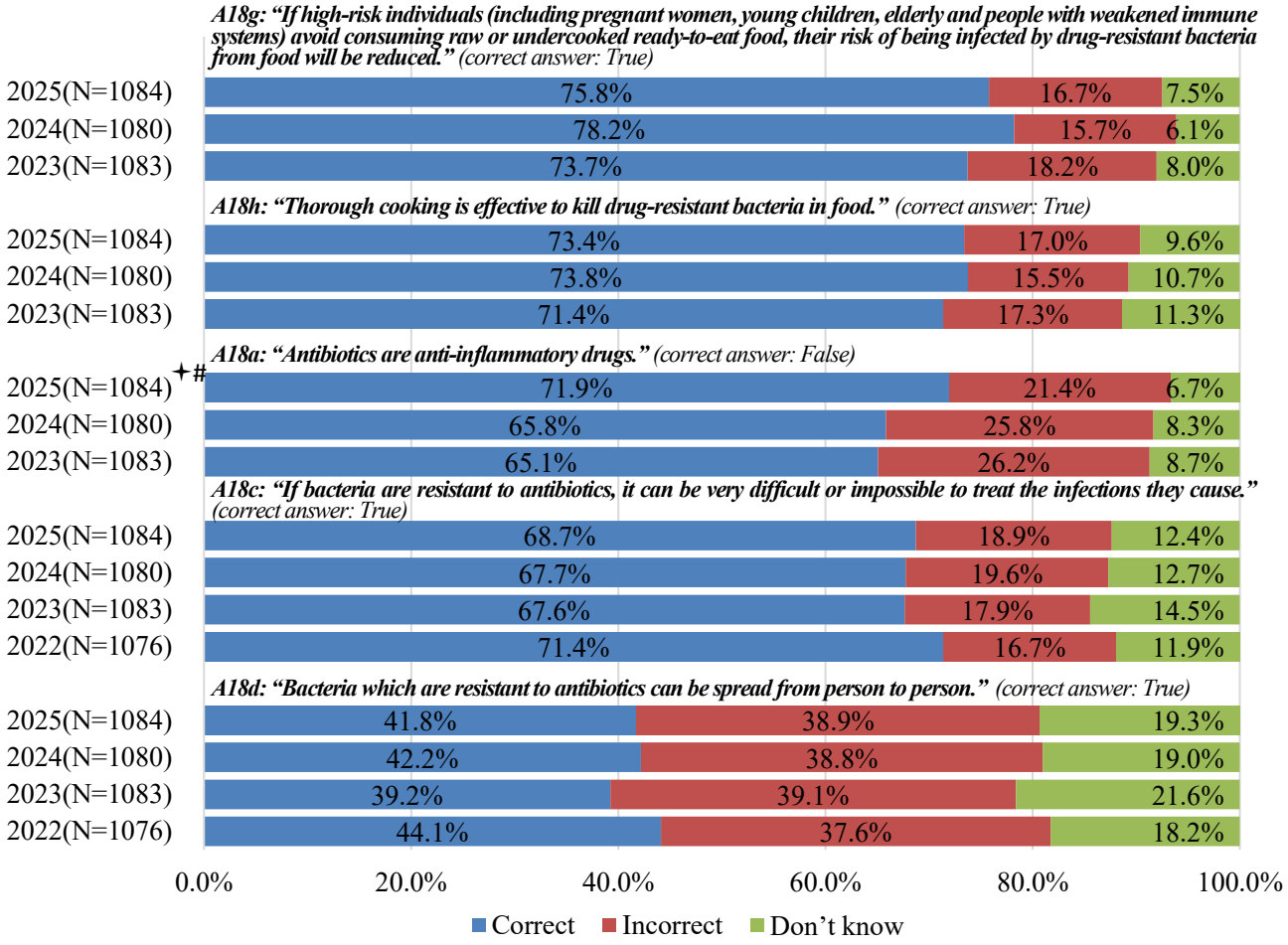
Among the 10 statements about antibiotic resistance, statistically significant differences between 2024 and 2025 were observed in the responses to 3 of them. The percentages of correct answers to statements A18a and A18j increased from 65.8% and 76.7% in 2024 to 71.9% and 77.0% in 2025, while the percentage of correct answers to statement A18b decreased from 83.1% to 81.9%. When compared with the baseline year 2023, statistically significant differences were observed in three statements, namely A18a, A18f and A18j. The percentages of correct answers increased from 65.1%, 71.1% and 71.2% in 2023 to 71.9%, 77.9% and 77.0% in 2025. No statistically significant difference was found for other statements (Figure 5.1.14).

Figure 5.1.14: Whether respondents correctly indicated if the selected statements about antibiotic resistance were true or false by year (%)



(to be continued)

Figure 5.1.14: Whether respondents correctly indicated if the selected statements about antibiotic resistance were true or false by year (%) (continued)



Base(N): Persons aged 15 and over.
Question: A18a-j "Please indicate whether you think the following statements are 'true' or 'false'."
Note: #There was a significant difference between 2025 and 2024 (A18b: *p<0.05; A18a and A18j: **p<0.01).
+There was a significant difference between 2025 and 2023 (A18a and A18f: **p<0.01; A18j: ***p<0.001).

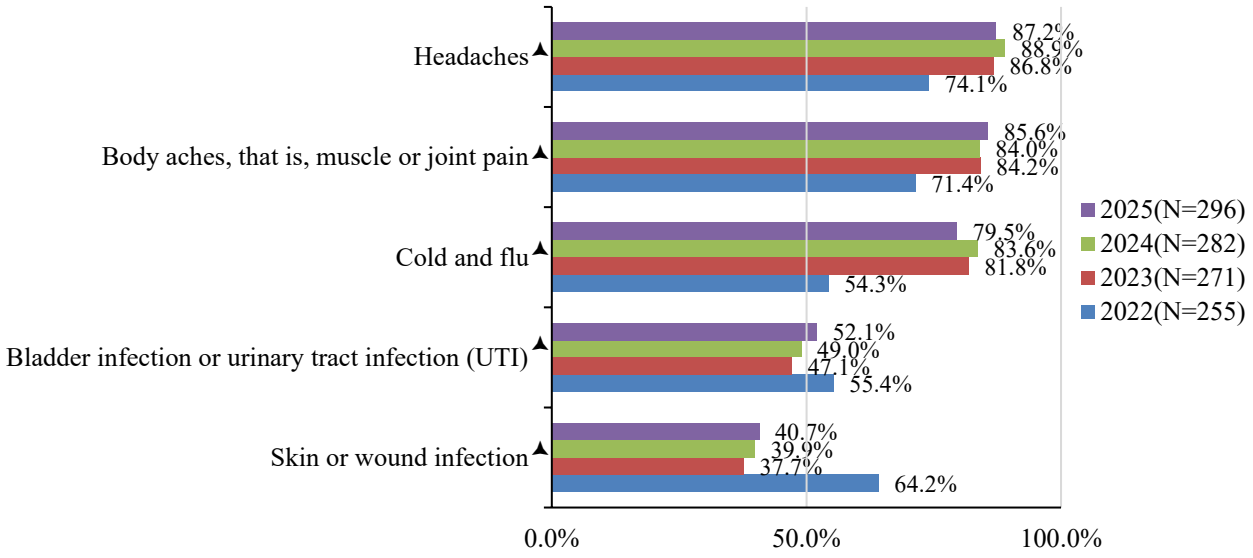
5.2 Further Analysis of the results among the Elderly

To assess the changes in knowledge and awareness among the elderly from 2022 to 2025, a comparative analysis of the respondents aged 65 or above was conducted in this section. Statistical tests were applied to evaluate the overall trend across 2022 – 2025 and to examine the differences between 2024 and 2025.

5.2.1 Knowledge of antibiotics among the elderly

Regarding the answers of elderly respondents on whether the selected health conditions need to be treated with antibiotics, statistically significant differences were observed across 2022–2025 for all five conditions, suggesting notable changes in the overall trend for all conditions. All five conditions showed a sharp increase or decrease from 2022 to 2023, followed by small to moderate shifts from 2023 to 2025. No statistically significant difference was found between 2025 and 2024, indicating that the knowledge of elderly respondents has remained stable over the past year. (Figure 5.2.1; Table 5.2.1).

Figure 5.2.1: Elderly respondents who correctly indicated whether the selected health conditions need to use^ antibiotics by year (%)



Base(N): Persons aged 65 and over.
Question in 2022: A13a-h "Do you think these conditions can be treated with antibiotics?"
Question in 2023–2025: A16a-e "Do you think these conditions need to use antibiotics?"
Note: ▲There were significant differences across 2022–2025 (*p < 0.05 for Bladder infection or urinary tract infection (UTI); ***p < 0.001 for the other four conditions); ^Comparisons should be made with caution, as certain question wordings have been revised since 2023 and, in 2025, the option "Body aches" was relabelled as "Body aches, that is, muscle or joint pain".

Table 5.2.1: Whether the elderly respondents correctly indicate if the selected health conditions need to use^ antibiotics by year (%)

	Elderly (Age ≥ 65)			
	2022	2023	2024	2025
Bladder infection or urinary tract infection (UTI) (correct answer: Yes)				
Correct	55.4	47.1	49.0	52.1
Incorrect	7.3	13.4	17.9	14.7
Don't know	37.4	39.5	33.1	33.3
Sample size	(255)	(271)	(282)	(296)
p-value (Chi-Square)	0.013* (2022 – 2025); 0.549 (2024 vs 2025)			
Cold and flu (correct answer: No)				
Correct	54.3	81.8	83.6	79.5
Incorrect	23.7	6.5	7.1	5.8
Don't know	22.0	11.7	9.3	14.6
Sample size	(255)	(271)	(282)	(296)
p-value (Chi-Square)	0.000*** (2022 – 2025); 0.131 (2024 vs 2025)			
Skin or wound infection (correct answer: Yes)				
Correct	64.2	37.7	39.9	40.7
Incorrect	10.3	39.5	34.5	39.4
Don't know	25.5	22.7	25.7	19.9
Sample size	(255)	(271)	(282)	(296)
p-value (Chi-Square)	0.000*** (2022 – 2025); 0.212 (2024 vs 2025)			
Body aches, that is, muscle or joint pain (correct answer: No)				
Correct	71.4	84.2	84.0	85.6
Incorrect	4.4	1.4	3.7	5.6
Don't know	24.1	14.5	12.3	8.8
Sample size	(255)	(271)	(282)	(296)
p-value (Chi-Square)	0.000*** (2022 – 2025); 0.239 (2024 vs 2025)			

(To be continued)

Table 5.2.1: Whether the elderly respondents correctly indicate if the selected health conditions need to use^ antibiotics by year (%) (Continued)

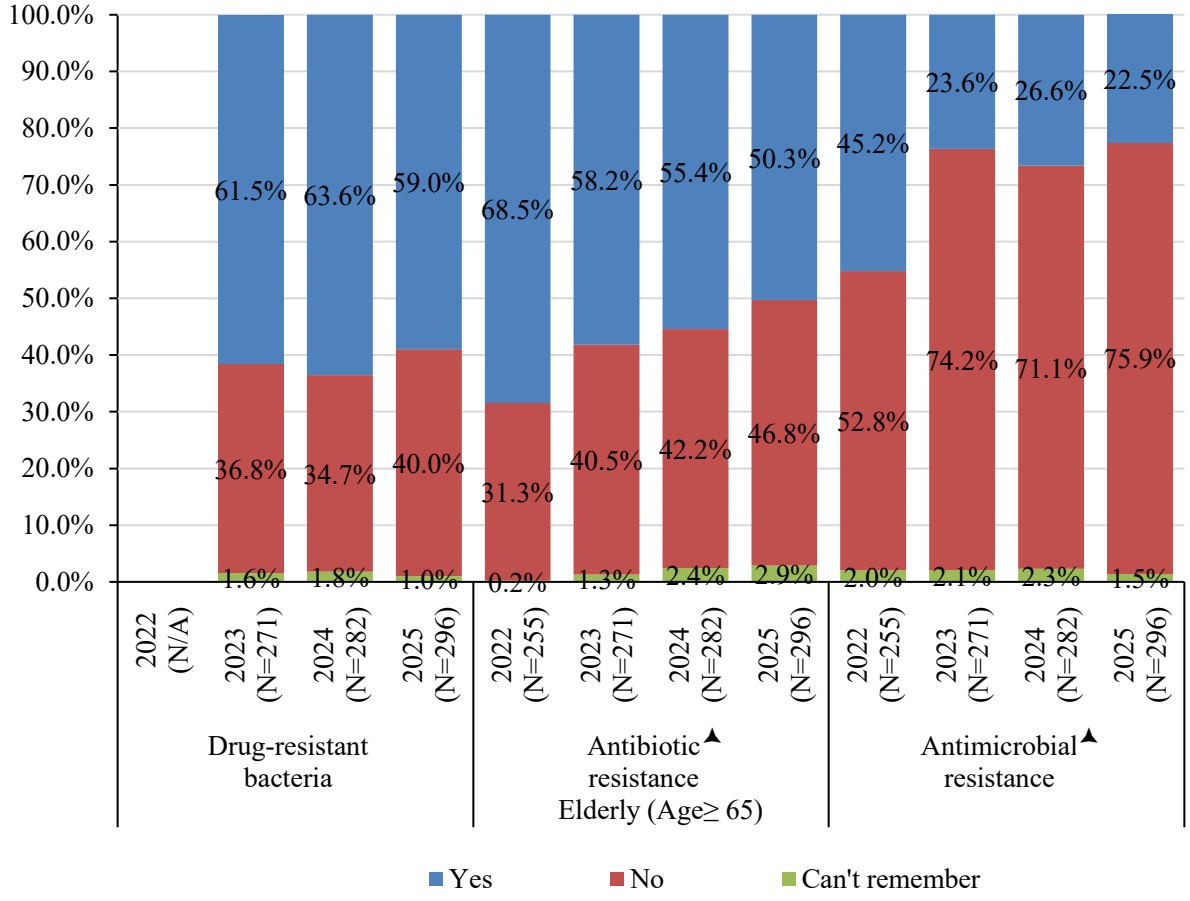
	Elderly (Age ≥ 65)			
	2022	2023	2024	2025
Headaches (correct answer: No)				
Correct	74.1	86.8	88.9	87.2
Incorrect	5.3	1.3	2.2	2.6
Don't know	20.7	12.0	8.9	10.2
Sample size	(255)	(271)	(282)	(296)
p-value (Chi-Square)	0.000*** (2022 – 2025); 0.816 (2024 vs 2025)			

Question in 2022: A13a-h "Do you think these conditions can be treated with antibiotics?"
Question in 2023–2025: A16a-e "Do you think these conditions need to use antibiotics?"
Note: ^Comparisons should be made with caution, as certain question wordings have been revised since 2023 and, in 2025, the option "Body aches" was relabelled as "Body aches, that is, muscle or joint pain".
*p<0.05, **p<0.01, ***p<0.001

5.2.2 Awareness of the selected terms related to antimicrobial resistance among the elderly

Among elderly respondents, statistically significant differences were observed across 2022–2025 in whether they had heard of "antibiotic resistance" and "antimicrobial resistance". Both terms showed a marked decline in awareness from 2022 to 2023, followed by slight to moderate fluctuations in the subsequent years (Figure 5.2.2; Table 5.2.2).

Figure 5.2.2: Whether the elderly respondents had heard of the selected terms related to antimicrobial resistance by year (%)



Base(N): Persons aged 65 and over.
Question: A17a-c "Have you heard of any of the following terms?"
Note: ▲There were significant differences across 2022–2025 (***p < 0.001).

Table 5.2.2: Whether the elderly respondents had heard of the selected terms related to antimicrobial resistance by year (%)

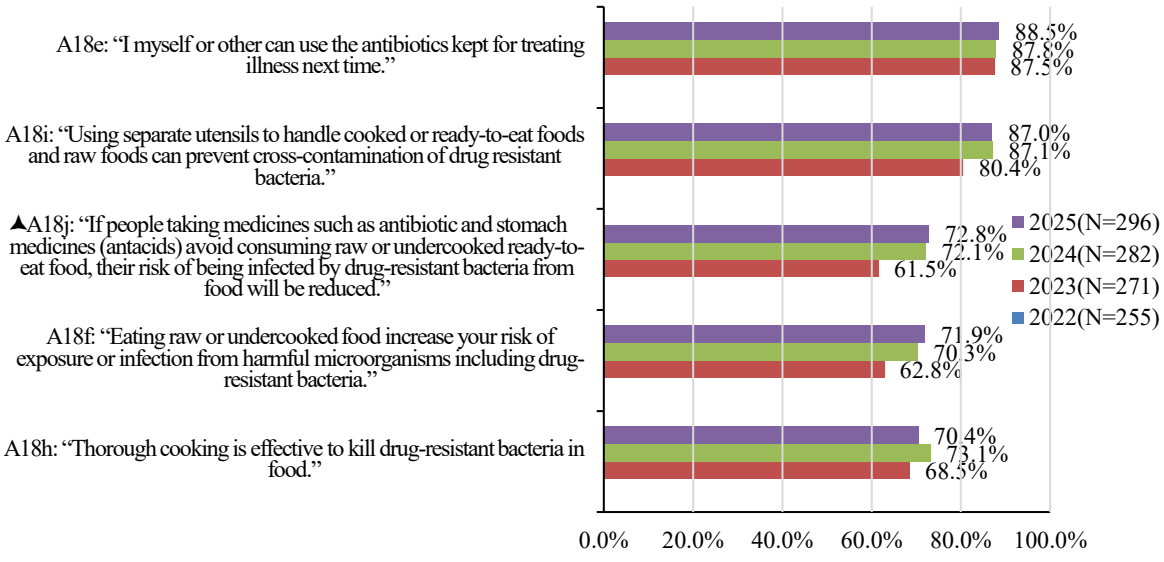
	Elderly (Age ≥ 65)			
	2022	2023	2024	2025
Drug-resistant bacteria				
Yes	--	61.5	63.6	59.0
No	--	36.8	34.7	40.0
Can't remember	--	1.6	1.8	1.0
Sample size	--	(271)	(282)	(296)
p-value (Chi-Square)	0.677 (2022 – 2025); 0.323 (2024 vs 2025)			
Antibiotic resistance				
Yes	68.5	58.2	55.4	50.3
No	31.3	40.5	42.2	46.8
Can't remember	0.2	1.3	2.4	2.9
Sample size	(255)	(271)	(282)	(296)
p-value (Chi-Square)	0.0007*** (2022 – 2025); 0.466 (2024 vs 2025)			
Antimicrobial resistance				
Yes	45.2	23.6	26.6	22.5
No	52.8	74.2	71.1	75.9
Can't remember	2.0	2.1	2.3	1.5
Sample size	(255)	(271)	(282)	(296)
p-value (Chi-Square)	0.000*** (2022 – 2025); 0.396 (2024 vs 2025)			

Question: A17a-c "Have you heard of any of the following terms?"
*p<0.05, **p<0.01, ***p<0.001

5.2.3 Judgement of the selected statements about antibiotic resistance among the elderly

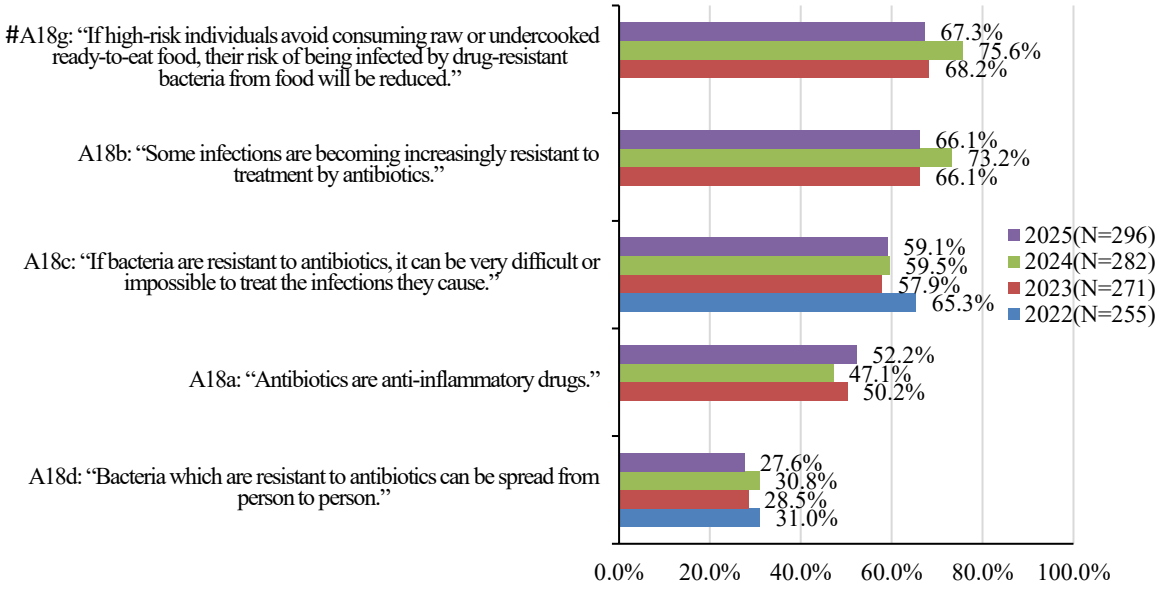
Statistically significant differences across 2023 – 2025 were observed in the answers of the elderly respondents to the statement "If people taking medicines such as antibiotic and stomach medicines (antacids) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced", with the percentages of correct answers increasing from 61.5% in 2023 to 72.1% in 2024, and further to 72.8% in 2025. Compared with 2024, a statistically significant difference was observed in the responses to the statement "If high-risk individuals (including pregnant women, young children, elderly and people with weakened immune systems) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced", with the percentage of correct answers decreasing from 75.6% in 2024 to 67.3% in 2025. No statistically significant difference was observed for the remaining statements (Figure 5.2.3; Table 5.2.3).

Figure 5.2.3: Elderly respondents who correctly indicated whether the selected statements about antibiotic resistance were true or false by year (%)



(To be continued)

Figure 5.2.3: Elderly respondents who correctly indicated whether the selected statements about antibiotic resistance were true or false by year (%) (Continued)



Base(N): Persons aged 65 and over.
Question: A18a-j "Please indicate whether you think the following statements are 'true' or 'false'."
Note: ▲There were significant differences across 2023–2025 (*p < 0.05); #There was a significant difference between 2025 and 2024 (*p < 0.05).

Table 5.2.3: Whether the elderly respondents correctly indicate if the selected statements about antibiotic resistance as true or false by year (%)

	Elderly (Age ≥ 65)			
	2022	2023	2024	2025
Antibiotics are anti-inflammatory drugs (correct answer: False)				
Correct	--	50.2	47.1	52.2
Incorrect	--	32.2	33.7	32.8
Don't know	--	17.7	19.1	15.0
Sample size	--	(271)	(282)	(296)
p-value (Chi-Square)	0.670 (2023 – 2025); 0.324 (2024 vs 2025)			
Some infections are becoming increasingly resistant to treatment by antibiotics (correct answer: True)				
Correct	--	66.1	73.2	66.1
Incorrect	--	9.0	6.0	11.2
Don't know	--	24.9	20.7	22.7
Sample size	--	(271)	(282)	(296)
p-value (Chi-Square)	0.147 (2023 – 2025); 0.059 (2024 vs 2025)			

(To be continued)

Table 5.2.3: Whether the elderly respondents correctly indicate if the selected statements about antibiotic resistance as true or false by year (%) (Continued)

	Elderly (Age ≥ 65)			
	2022	2023	2024	2025
If bacteria are resistant to antibiotics, it can be very difficult or impossible to treat the infections they cause (correct answer: True)				
Correct	65.3	57.9	59.5	59.1
Incorrect	8.9	12.8	14.7	14.3
Don't know	25.8	29.4	25.8	26.6
Sample size	(255)	(271)	(282)	(296)
p-value (Chi-Square)	0.343 (2022 – 2025); 0.969 (2024 vs 2025)			
Bacteria which are resistant to antibiotics can be spread from person to person (correct answer: True)				
Correct	31.0	28.5	30.8	27.6
Incorrect	34.4	32.2	38.1	34.9
Don't know	34.6	39.2	31.1	37.6
Sample size	(255)	(271)	(282)	(296)
p-value (Chi-Square)	0.512 (2022 – 2025); 0.254 (2024 vs 2025)			
I myself or other can use the antibiotics kept for treating illness next time (correct answer: False)				
Correct	--	87.5	87.8	88.5
Incorrect	--	5.6	7.4	6.3
Don't know	--	6.8	4.8	5.1
Sample size	--	(271)	(282)	(296)
p-value (Chi-Square)	0.753 (2023 – 2025); 0.871 (2024 vs 2025)			
Eating raw or undercooked food increase your risk of exposure or infection from harmful microorganisms including drug-resistant bacteria (correct answer: True)				
Correct	--	62.8	70.3	71.9
Incorrect	--	17.8	12.3	11.7
Don't know	--	19.4	17.3	16.4
Sample size	--	(271)	(282)	(296)
p-value (Chi-Square)	0.126 (2023 – 2025); 0.916 (2024 vs 2025)			

(To be continued)

Table 5.2.3: Whether the elderly respondents thought the selected statements about antibiotic

resistance as true or false by year (%) (Continued)

	Elderly (Age ≥ 65)			
	2022	2023	2024	2025
If high-risk individuals (including pregnant women, young children, elderly and people with weakened immune systems) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced (correct answer: True)				
Correct	--	68.2	75.6	67.3
Incorrect	--	17.2	15.6	16.8
Don't know	--	14.6	8.8	16.0
Sample size	--	(271)	(282)	(296)
p-value (Chi-Square)	0.088 (2023 – 2025); 0.025* (2024 vs 2025)			
Thorough cooking is effective to kill drug-resistant bacteria in food (correct answer: True)				
Correct	--	68.5	73.1	70.4
Incorrect	--	15.7	12.2	15.7
Don't know	--	15.8	14.6	13.9
Sample size	--	(271)	(282)	(296)
p-value (Chi-Square)	0.668 (2023 – 2025); 0.481 (2024 vs 2025)			
Using separate utensils to handle cooked or ready-to-eat foods and raw foods can prevent cross-contamination of drug-resistant bacteria (correct answer: True)				
Correct	--	80.4	87.1	87.0
Incorrect	--	6.0	3.1	4.6
Don't know	--	13.5	9.8	8.4
Sample size	--	(271)	(282)	(296)
p-value (Chi-Square)	0.122 (2023 – 2025); 0.566 (2024 vs 2025)			
If people taking medicines such as antibiotic and stomach medicines (antacids) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced (correct answer: True)				
Correct	--	61.5	72.1	72.8
Incorrect	--	15.7	11.0	13.5
Don't know	--	22.8	16.9	13.7
Sample size	--	(271)	(282)	(296)
p-value (Chi-Square)	0.015* (2023 – 2025); 0.416 (2024 vs 2025)			

Question: A18a-j "Please indicate whether you think the following statements are 'true' or 'false'."
*p<0.05, **p<0.01, ***p<0.001

6. Conclusion and Recommendations

6.1 Conclusion

6.1.1 Use of antibiotics

In the 2025 survey, most (96.8%) of respondents who had taken antibiotics reported that their last taken antibiotics were prescribed by doctors. Compared with 2024 (56.6%), a higher proportion of this subgroup obtained their antibiotics last taken from private clinics in 2025 (64.7%). Out of the 50.1% of total respondents who had consulted doctor(s) for cold or flu in the past 12 months, a vast majority (95.4%) did not request antibiotics during that consultation.

A very high proportion of respondents completed the whole course of antibiotic treatment as instructed by doctor in 2025 (95.1%). For those who did not complete the whole course of treatment, improvement of symptoms (69.8%) remained to be the most common reason.

6.1.2 Awareness of the health advice printed on antibiotics medicine bag and the frequency of practising the health advice

Among respondents whose antibiotics last taken were prescribed by doctors, only 21.2% reported that they had noticed the health advice on antibiotics medicine bags. For those who had noticed the advice, 85.4% considered the advice helpful in reminding them to be aware of and maintain personal hygiene. Even though their awareness of printed health advice was low, many of the respondents always or seldom practising the following health advice when handling or taking antibiotics in daily life during the last medication period:

a. Eat or drink only thoroughly cooked or boiled items: 98.0% (always: 92.0%; seldom: 6.0%);
b. Wear surgical mask if you have respiratory symptoms: 95.7% (always 75.5%; seldom: 20.2%);
c. Young children with symptoms of infections should minimise contact with other children: 92.8% (always 81.5%; seldom: 11.4%);
d. Disinfect and cover all wounds: 92.7% (always: 66.8%; seldom: 26.0%), and;
e. Practise frequent hand hygiene: 86.1% (always 61.2%; seldom: 24.9%).

In particular, the proportion of always or seldom wearing surgical masks if they have respiratory symptoms increased from 87.5% (always: 72.3%; seldom: 15.2%) in 2022 to 95.7% (always: 75.5%; seldom: 20.2%) in 2025.

6.1.3 Awareness of the notices about "Do not purchase antibiotics without a prescription" posted at community pharmacies

A higher proportion of respondents had noticed the warning notice "Do not purchase antibiotics without a prescription" posted at community pharmacies and found it helpful in 2025 (12.5%) compared with 2023 (8.4%), but the percentage remained low.

6.1.4 Knowledge, awareness and attitude

When doctor's initial assessment indicated that antibiotic was not needed at the moment, the proportion of respondents who would accept the doctor's advice to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics increased from 93.9% in 2024 to 94.4% in 2025.

On the other hand, 49.9% of all respondents wanted doctors to share decision making with them on antibiotics prescription, while 32.6% said they did not — statistically significantly different from the 2024 survey (wanted: 50.4%; did not want: 28.6%). Similar to previous years' survey, a high proportion (83.1%) of all respondents did not prefer consulting doctors who prescribed antibiotics more readily.

In addition to attitudes, the survey also assessed respondents' knowledge about antibiotics. All respondents were asked whether antibiotics are needed for five health conditions. Compared to 2022 (49.7%), the proportion of respondents (80.0%) correctly answered that cold and flu does not need to be treated by antibiotics maintained at a high level. Besides, more respondents gave correct response for bladder infection or urinary tract infection (UTI), body aches and headaches while less respondents gave correct answer to skin or wound infection. The percentages of correct responses in 2025 and 2022 are listed below:[3]

a. Headaches (Correct answer: 93.3% in 2025, 79.5% in 2022);
b. Body aches, that is, muscle or joint pain (Correct answer: 91.3% in 2025, 78.0% in 2022);
c. Cold and flu (Correct answer: 80.0% in 2025, 49.7% in 2022) ;
d. Bladder infection or urinary tract infection (UTI) (Correct answer: 60.1% in 2025, 59.4% in 2022); and
e. Skin or wound infection (Correct answer: 47.0% in 2025, 75.7% in 2022).

Compared with 2024, knowledge about body aches and bladder infection or urinary tract infection (UTI) showed significant improvements, with the percentages of correct

[3] Surveys conducted in 2023 and later asked whether the selected health conditions needed to use antibiotics, while the 2022 survey asked whether selected health conditions could be treated with antibiotics.

answer increasing from 89.0% and 54.8% in 2024 to 91.3% and 60.1% in 2025, respectively.

As regards antimicrobial resistance related terms, the percentage of respondents who had heard of the term “antibiotic resistance” (抗生素耐藥性) and “antimicrobial resistance” (抗菌素耐藥性) dropped respectively from 76.0% and 40.3% in 2022 to 66.9% and 22.5% in 2025, while both percentages remained relatively stable with slight fluctuations since 2023.

In general, the respondents have fairly good knowledge of antimicrobial resistance as reflected by the percentages of correct answers to the following statements about antibiotic resistance:

a. I myself or other can use the antibiotics kept for treating illness next time (False: 92.6%);
b. Using separate utensils to handle cooked or ready-to-eat foods and raw foods can prevent cross-contamination of drug-resistant bacteria (True: 89.6%);
c. Some infections are becoming increasingly resistant to treatment by antibiotics (True: 81.9%);

Besides, more respondents correctly answered that antibiotics are not anti-inflammatory drugs in 2025 (71.9%) compared to 2024 (65.8%) (statistically significant difference).

However, the rate of correctly answering the statement “bacteria which are resistant to antibiotics can spread from person to person” remained the lowest over the years at around 40% (39.2% to 44.1% from 2022 to 2025)

In addition, there is room for improvement in public awareness of the risk of AMR in

food:

a. Eating raw or undercooked food increase your risk of exposure or infection from harmful microorganisms including drug-resistant bacteria (True: 77.9%);
b. If people taking medicines such as antibiotic and stomach medicines (antacids) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced (True: 77.0%);
c. If high-risk individuals (including pregnant women, young children, elderly and people with weakened immune systems) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced (True: 75.8%);
d. Thorough cooking is effective to kill drug-resistant bacteria in food (True: 73.4%);

Subgroup analysis by age showed that those aged 65 or above were generally less knowledgeable compared to other age groups. Among respondents aged 65 or above, the rates of correctly answered the need of antibiotics for all health conditions remain low, except for cold and flu, of which the rate was lowest in those aged between 15 and 24. Besides, those aged 65 or above were significantly less likely to provide correct answers to seven statements related to antimicrobial resistance and risk of AMR in food.

6.1.5 Knowledge and awareness of the elderly

In general, the knowledge of the elderly respondents has remained at a similar level from 2024 to 2025. As for the overall trends, improvements were observed in certain questions.

Regarding the responses to whether the five health conditions need to be treated with antibiotics, there was no significant changes between 2024 and 2025, implying that the knowledge of elderly respondents has remained stable over the past year. The rates of correct answers remained fairly high for Headaches (87.2%), Body aches (85.6%) and Cold and flu (79.5%), while the rates remained relatively low for Bladder infection or urinary tract infection (UTI) (52.1%), and Skin or wound infection (40.7%).

With respect to the responses to the selected statements about antibiotic resistances and risk of AMR in food, level of knowledge remains relatively low among elderly respondents. Notably, significant changes are observed in the following two statements related to risk of AMR in food, with one showing improvement and the other showing setback:

a. “If people taking medicines such as antibiotic and stomach medicines (antacids) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced”, with the percentages of correct answers increasing from 61.5% in 2023 to 72.1% in 2024, and further to 72.8% in 2025.
b. “If high-risk individuals (including pregnant women, young children, elderly and people with weakened immune systems) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced”, with the percentage of correct answers decreasing from 75.6% in 2024 to 67.3% in 2025.

6.2 Recommendations

1. The 2025 KAP survey results showed that the knowledge, attitude and practice of the general public in Hong Kong have been maintained on the whole. It is recommended that authorities continue to reinforce existing knowledge and work on closing known gaps in the knowledge, attitude and practice through existing practices.

2. Similar to previous years, a high proportion of the respondents (80.0%) correctly answered that cold and flu does not need to be treated by antibiotics. Despite the high rate of correct response, given the seasonal occurrence and high incidence of influenza and common cold every year, it remains imperative that continued effort be made to educate the public that common cold and influenza do not need to be treated with antibiotics.

3. Only around two-fifths of the respondents knew that bacteria resistant to antibiotics could be spread from person to person. Health promotion should reinforce the idea that drug-resistant bacteria can spread as easily as other bacteria from person to person, and that proper infection measures can prevent its spread.

4. Only around a fifth of respondents had heard of "Antimicrobial Resistance" (抗菌素耐藥性). To enhance the public's knowledge and awareness of antimicrobial resistance, more intensive health education and promotion activities should be conducted through easy-to-understand and impactful media channels.

5. Respondents who aged 65 or above were generally less likely to correctly identify the correct answers regarding whether certain conditions need antibiotics or whether certain statements about antibiotic resistance are correct. Measures should be taken to targeted health promotion activities towards this age group.

6. This survey also revealed that only half of the respondents wanted their doctors to share decision making with them on antibiotics prescription, but the majority would accept doctor's advice to observe for a few more days before deciding whether to prescribe antibiotics when the initial assessment indicated that antibiotics were not needed. Given their role in continuity of care, primary care doctors are in the best position to minimize the spread of antibiotic resistance by practising antibiotic stewardship and educating patients about the importance of using antibiotics safely and appropriately.

6.3 Limitations

1. Landline surveys could not reach households without landline telephones while the number of residential landlines in Hong Kong has kept on decreasing in recent years. In order to reduce the over- or under-representation of different groups in the population, this project employed dual-frame telephone sampling and weighted the data by the distribution of age and gender.

2. Selection bias and response bias exist – this study did not account for the views of the following groups:

   (a) elderly who resided in residential care homes and did not have mobile phones. Hence, those older people were underrepresented and the findings may not be fully representative of the older population in Hong Kong.

   (b) subjects who declined the interview may have different views from those who agreed to be interviewed.

3. The 2023, 2024, and 2025 surveys were primarily conducted in November, December, or even January, while the 2022 survey was conducted between September and October. Caution should therefore be exercised when comparing results, as health seeking behaviours may vary across seasons.

4. Since the survey was conducted by means of telephone interview, it was impracticable to use visual aids. For example, it was not possible to show the sample of antibiotics medicine bag when asking respondents whether they had noticed the health advice printed on it.

5. The data of the survey were self-reported by the respondent and verification of their answers was infeasible.

(END)

Appendix I: Content of Questionnaire

公眾對抗生素耐藥性認知、態度及行為調查 2025

General Public's Knowledge, Attitude and Practice Survey on Antibiotic Resistance 2025

GENDER　受訪者性別　Respondent's gender:

1. 男 Male　　2. 女 Female

AGE「請問你屬於以下邊個年齡組別呢？係15至24、25至34，35至44、45至54、55至64，定係65歲或以上呢？」
"Which of the following age groups do you belong to? 15 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, or 65 or above?"

1. 15至24歲　[15 to 24]
2. 25至34歲　[25 to 34]
3. 35至44歲　[35 to 44]
4. 45至54歲　[45 to 54]
5. 55至64歲　[55 to 64]
6. 65歲或以上　[65 or above]
9. 拒絕回答　[Refused to answer] 【問卷結束】【Interview ends】

「我想了解吓你使用抗生素嘅情況同埋你對使用抗生素嘅睇法。抗生素係用嚟殺死細菌或令佢地停止繁殖嘅藥物。唔同種類嘅抗生素可用作治療唔同嘅細菌感染。」
"Next, I'd like to know about your use of antibiotics and your view on the use of antibiotics. Antibiotics are defined as drugs used to kill bacteria or stop them from multiplying. Different kinds of antibiotics can be used to treat different bacterial infections."

A1「請問你對上一次使用抗生素係幾時呢？」【讀出1-6】
"When did you last take antibiotics?" 【Read 1-6】

1. 過去30日內 [In the past 30 days] 【續問A2】【continue with A2】
2. 過去三個月內 [In the past 3 months] 【續問A2】【continue with A2】
3. 過去半年內 [In the past half year] 【續問A2】【continue with A2】
4. 過去一年內 [In the past year] 【續問A2】【continue with A2】
5. 超過一年之前 [More than a year ago] 【續問A2】【continue with A2】
6. 從未使用過 [Never] 【跳問A10】【skip to A10】
9. 唔記得 [Can't remember] 【跳問A10】【skip to A10】

【訪問員注意：若受訪者不清楚／不知道對上一次所使用的藥物是否抗生素，可要求受訪者憑印象回答。】
【Note to interviewer: If the respondent is unclear / unsure whether the last medication used was an antibiotic, the respondent can be asked to answer the question by impression.】
【訪問員注意：若受訪者回答「唔記得」，追問對上一次使用抗生素係唔係「超過一年之前」。】
【Note to interviewer: If the respondent answers "Can't remember", the respondent can be asked "Was it more than a year ago?"】

【只問有使用過抗生素（A1=1-5）的受訪者】
【Ask those who has taken antibiotics（A1=1-5）only】
A2「嗰次使用嘅抗生素係唔係由醫生(包括牙醫)開嘅呢？」
"On that occasion, was the antibiotics prescribed by a doctor (including dentist)?"

1. 係 [Yes] 【跳問A4】【skip to A4】
2. 唔係 [No] 【續問A3】【continue with A3】
9. 唔記得 [Can' t remember] 【續問 A3】【continue with A3】

【只問抗生素唔係由醫生開/唔記得（A2=2/9）的受訪者】
【Ask those whose last taken antibiotics were not prescribed by a doctor or who could not remember whether they were prescribed by a doctor（A2=2/9）only】
A3 「咁嗰次你喺邊度得到抗生素？」【讀出1-5】
"On that occasion, where did you get the antibiotics?" 【Read 1-5】

1. 藥店或藥房 [Medical store or pharmacy]
2. 網上 [The internet]

3. 朋友或屋企人 [Friend or family member]
4. 我之前食剩嘅 [Leftover from before]
5. 其他地方或其他人得到嘅（請註明）[Somewhere / someone else (please specify)]
9. 唔記得 [Can't remember]

【此題完成後跳問 A10】【Skip to A10 after this question】

【只問抗生素由醫生開（A2=1）的受訪者】
【Ask those whose antibiotics was prescribed by a doctor (A2=1) only】
A4「咁嗰次喺邊類嘅診所或醫院得到抗生素呢？」【讀出1-6】
"On that occasion, from which type of clinic or hospital did you get the antibiotics?" 【Read 1-6】

1. 私家診所（包括醫生診所及牙科診所）
   [**Private clinics** (including western medicine clinics and dental clinics)]
2. 醫院管理局轄下診所（包括家庭醫學門診（前稱普通科門診或家庭醫學專科門診）、
   設於醫管局轄下醫院嘅專科門診、
   以及醫管局轄下醫院嘅牙科診所）
   [**Clinics under the Hospital Authority** (including family medicine clinics (formerly known as general outpatient clinics or family medicine specialist clinics), specialist outpatient clinics in hospitals under the Hospital Authority, and dental clinics in hospitals under the Hospital Authority)]
3. 衞生署轄下診所（包括長者健康中心、公務員診所、胸肺服務診 所、皮膚科診所、
   社會衞生科診所、及牙科診所）
   [**Clinics under the Department of Health** (including Elderly Health Centres, Families Clinics (for civil servant), Chest Clinics, Dermatological Clinics, Social Hygiene Clinics, and Dental Clinics)]
4. 其他診所（包括資助機構或慈善團體轄下診所等）
   [**Other clinics** (including clinics under subsidised organisations or charities, etc.)]
5. 私家醫院 [**Private hospitals**]
6. 醫院管理局轄下醫院 [**Hospitals under the Hospital Authority**]
7. 其他（註明）[Others (please specify)]
9. 唔記得 [Can't remember]

【只問抗生素由醫生開（A2=1）的受訪者】
【Ask those whose antibiotics was prescribed by a doctor (A2=1) only】
A5「咁嗰次你有冇見到抗生素藥袋上有叫人注意個人衞生嘅建議呢？」
"On that occasion, did you notice there is advice on personal hygiene on the antibiotics medicine

bags?”

1. 有 [Yes] 【續問A6】【continue with A6】
2. 冇 [No] 【跳問A7】【skip to A7】
9. 唔記得 [Can’t remember] 【跳問A7】【skip to A7】

【只問有見到抗生素藥袋上有叫人注意個人衞生嘅建議（A5=1）的受訪者】
【Ask those who noticed the advice on personal hygiene on the antibiotics medicine bags (A5=1) only】
A6「咁呢啲建議有冇幫助提醒你更留意和注重個人衞生呢？」
“Was the advice helpful to remind you to be aware of and maintain personal hygiene?”

1. 有幫助 [Yes]
2. 冇幫助 [No]

【只問抗生素由醫生開（A2=1）的受訪者】
【Ask those whose antibiotics was prescribed by a doctor (A2=1) only】
A7 「咁喺嗰次嘅整個抗生素療程期間，你喺日常生活處理或使用抗生素時，有幾經常做以下嘅行為呢？你可以回答『經常』、『間中』，同『冇』三個答案。」
“On that occasion, how often did you practise the following when you handled or took antibiotics in your daily life during the medication period? ‘Always’, ‘Seldom’ or ‘Never’?”

A7a 「『時刻保持手部衞生 』。係經常、間中，定係冇咁做呢？」
“‘Practise frequent hand hygiene’”

1. 經常 [Always]
2. 間中 [Seldom]
3. 冇 [Never]
9. 唔記得 [Can’t remember]

A7b 「『喺飲食時，食水和食物會徹底煮沸及煮熟』。係經常、間中，定係冇咁做呢？」
“‘Eat or drink only thoroughly cooked or boiled items’”

1. 經常 [Always]
2. 間中 [Seldom]
3. 冇 [Never]
9. 唔記得 [Can’t remember]

A7c 「『當出現傷口時，會消毒及覆蓋所有傷口』。係經常、間中，定係冇咁做呢？」
"'Disinfect and cover all wounds'"

1. 經常 [Always]
2. 間中 [Seldom]
3. 冇 [Never]
9. 唔記得 [Can't remember]
0. 不適用 [Not applicable]

A7d 「『當有呼吸道感染病徵時，戴上外科口罩』。係經常、間中，定係冇咁做呢？」
"'Wear surgical mask if you have respiratory symptoms'"

1. 經常 [Always]
2. 間中 [Seldom]
3. 冇 [Never]
9. 唔記得 [Can't remember]
0. 不適用 [Not applicable]

A7e 「『如家中嘅幼童出現傳染病病徵，會盡可能減少接觸其他兒童』。係經常、間中，定係冇咁做呢？」
"'Young children with symptoms of infections should minimise contact with other children'"
【幼童指12歲或以下】[Young Children refer to those aged 12 or below]

1. 經常 [Always]
2. 間中 [Seldom]
3. 冇 [Never]
9. 唔記得 [Can't remember]
0. 不適用（家中沒有幼童）[No young child at home]

【只問抗生素由醫生開（A2=1）的受訪者】
【Ask those whose antibiotics was prescribed by a doctor (A2=1) only】
A8 「咁嗰次你使用抗生素嘅時候，有冇依照醫生指示完成整個療程？」
"On that occasion, did you complete the whole course of treatment as instructed by doctor?"
【訪問員注意：如受訪者尚未完成整個療程，但會依照醫生指示完成，輸入「1」】
【Note to interviewer: Enter '1' if the respondent has not yet completed the current course of treatment but plans to complete】

1. 有 [Yes] 【跳問A10】【skip to A10】
2. 冇 [No] 【續問A9】【continue with A9】
9. 唔記得 [Can't remember] 【跳問A10】【skip to A10】

【只問沒有依照醫生指示完成整個療程（A8=2）的受訪者】
【Ask those whose did not complete the whole course of treatment as instructed by doctor (A8=2) only】
A9 「你冇完成整個抗生素療程最主要嘅原因係：」【讀出1-4】
"The main reason that you did not complete the whole course of treatment is:" 【Read 1-4】

1. 病徵好轉 [Symptoms improve]
2. 抗生素有副作用 [Presence of side effects due to antibiotics]
3. 忘記食藥 [Forget to take medicine]
4. 遺失藥物 [Lost the medicine]
9. 其他原因（請註明）[Other reasons (please specify)]

A10「藥房有「切勿在沒有處方下自行購買抗生素」嘅告示，有人留意到亦有人無留意，咁最近一次你去藥房時，有冇見到依個告示呢？」
【訪問員注意：如果有的話，再追問：「呢啲告示有冇提醒到你在沒有醫生處方下不應自行購買抗生素？」】
"Some people might have seen notices about 'Do not purchase antibiotics without a prescription' posted at community pharmacies. On last visit to community pharmacy, did you see this notice?"
【Note to interviewer: If yes, ask "Did the notice help to remind you not to purchase antibiotics without doctor's prescription?"】

1. 有見過、有提醒到 [Have noticed the notice, and were reminded]
2. 有見過、冇提醒到 [Have noticed the notice, but were not reminded]
3. 冇見過呢啲告示 [Have not noticed the notice before]
9. 最近沒有去過藥房/ 唔記得 [Recently have not been to a pharmacy/ Can't remember]

A11 「喺過去十二個月內，你有冇因為傷風或流行性感冒而睇過醫生？」
“In the past 12 months, had you consulted doctor(s) for cold or flu?”

1. 有 [Yes] 【續問A12】【continue with A12】
2. 冇 [No] 【跳問 A13】【skip to A13】
9. 唔記得或不知道是否傷風或流行性感冒 【跳問 A13】【skip to A13】
[Can’t remember or don’t know whether it was cold or flu]

【只問過去十二個月內有因為傷風／流行性感冒而睇過醫生（A11=1）的受訪者】
【Ask those who consulted doctor(s) for cold or flu in the past 12 months (A11=1) only】
A12 「嗰次睇醫生你有冇要求醫生開抗生素呢？」
“Had you asked for antibiotics during that consultation?”

1. 有 [Yes] 9. 唔記得 [Can’t remember]
2. 冇 [No]

A13「當你睇醫生嘅時候，如果醫生認為你嘅病暫時唔需要使用抗生素，叫你觀察多一段時間，或者等埋測試結果先決定開唔開抗生素，你接唔接受呢？」
“When you consult a doctor and his / her initial assessment for you indicated that antibiotic is not needed at the moment, would you accept if the doctor tells you to observe for a few more days or to wait for the diagnostic test result before deciding whether to prescribe antibiotics or not?”

1. 會／接受 [Yes / Accept] 8. 唔知道 [Don’t know]
2. 唔會／唔接受 [No / Not accept]

A14「醫生開藥之前，你想唔想醫生同你一齊商量使唔使開抗生素呢？」
“Do you want your doctor to share decision making with you on antibiotics prescription?”

【訪問員注意：如受訪者答「醫生決定使唔使開抗生素」，可向受訪者作簡單解釋：「咁你自己想唔想醫生同你一齊商量使唔使開抗生素？」】
【 Note to interviewer: If the respondent answers “Doctors make decision on antibiotics prescription”, please briefly explain to the respondent: “Do you (yourself) want the doctor to share decision making with you on antibiotics prescription?”】

1. 想 [Yes] 7. 冇意見 [Neutral]
2. 唔想 [No]

A15「你會唔會選擇向較輕易開抗生素嘅醫生求醫呢？」
“Do you prefer consulting doctors who prescribe antibiotics more readily?”

1. 會 [Yes]
2. 唔會 [No]
8. 唔知道／視乎情況而定 [Don’t know / Depends on the situation]

A16「你覺得以下情況係唔係需要用抗生素？」
“Do you think these conditions need to use antibiotics?”

【訪問員注意：若受訪者表示疑惑，可向受訪者簡單解釋：「你只需要以你嘅認知回答就可以。」】
【Notes to interviewer: If the respondent expresses doubt, please briefly explain to the respondent: “You may answer the questions based on what you know.”】

【A16a至A16e會隨機顯示。】[Questions A16a to A16e will be displayed randomly.]

A16a 「『膀胱或泌尿道感染，即係尿道炎』，係唔係需要用抗生素呢？」
“Bladder infection or urinary tract infection (UTI)”

1. 需要 [Yes]
2. 唔需要 [No]
8. 唔知道 [Don’t know]

A16b 「『傷風感冒』，係唔係需要用抗生素呢？」
“Cold and flu.”

1. 需要 [Yes]
2. 唔需要 [No]
8. 唔知道 [Don’t know]

A16c 「『皮膚或傷口感染發炎』，係唔係需要用抗生素呢？」
“Skin or wound infection”

1. 需要 [Yes]
2. 唔需要 [No]
8. 唔知道 [Don’t know]

A16d 「『身體酸痛，即係肌肉或關節痛』，係唔係需要用抗生素呢？」
“Body aches, that is, muscle or joint pain”

1. 需要 [Yes]
2. 唔需要 [No]
8. 唔知道 [Don’t know]

A16e 「『頭痛』，係唔係需要用抗生素呢？」
“Headaches”

1. 需要 [Yes]
2. 唔需要 [No]
8. 唔知道 [Don’t know]

A17 「你有冇聽過以下詞語呢？」
“Have you heard of any of the following terms?”

【訪問員注意：若受訪者表示疑惑，可向受訪者簡單解釋：「你只需要話俾我知你有冇聽過呢啲詞語就可以，唔一定要知道佢哋點解」】
【Notes to interviewer: If the respondent expresses doubt, please briefly explain to the respondent: "You only need to tell me whether you have heard of the following terms, and you do not need to understand the exact meaning of these terms."】

【A17a 至 A17c 會隨機顯示。】[Questions A17a to A17c will be displayed randomly.]

A17a 「『耐藥性細菌』，你有冇聽過呢？」
“Have you heard of ‘Drug-resistant bacteria’?”

1. 有 [Yes]
2. 冇 [No]
9. 唔記得 [Can’t remember]

A17b 「『抗生素耐藥性』，你有冇聽過呢？」
“Have you heard of ‘Antibiotic resistance’?”

1. 有 [Yes]
2. 冇 [No]
9. 唔記得 [Can’t remember]

A17c 「『抗菌素耐藥性』，你有冇聽過呢？」
“Have you heard of ‘Antimicrobial resistance’?”

1. 有 [Yes]
2. 冇 [No]
9. 唔記得 [Can’t remember]

【如受訪者冇聽過或唔記得有否聽過抗生素耐藥性／抗菌素耐藥性／耐藥性細菌（A17a／A17b／A17c = 2／9），請讀出以下內容 (A18_In) 。】
【If never heard of or can’t remember whether he / she has heard of antibiotic resistance / antimicrobial resistance / drug-resistant bacteria (A17a / A17b / A17c = 2/9), continue with the instruction (A18_In).】

A18_In「以下問題會提及耐藥性或者抗藥性，即係指微生物例如細菌、病毒能夠抵抗藥物。」
“Drug resistance means that microorganisms such as bacteria and viruses can resist drugs.”

A18「你覺得以下一啲對抗生素同抗藥性嘅睇法係『啱』定係『錯』呢？」
“Please indicate whether you think the following statements are “true” or “false”.”

【訪問員注意：若受訪者表示疑惑，可向受訪者簡單解釋：「你只需要以你嘅認知回答就可以。」】
【Notes to interviewer: If the respondent expresses doubt, please briefly explain to the respondent: "You may answer the questions based on what you know."】

【A18a至A18j會隨機顯示】[Questions A18a to A18j will be displayed randomly.]

A18a 「『抗生素即係消炎止痛藥』，你覺得係啱定錯呢？」
“‘Antibiotics are anti-inflammatory drugs’”

1. 啱／對 [True]
2. 錯／不對 [False]
8. 唔知道 [Don’t know]

A18b 「『有啲感染對抗生素治療越嚟越有抗藥性』，你覺得係啱定錯呢？」
“‘Some infections are becoming increasingly resistant to treatment by antibiotics’”

1. 啱／對 [True]
2. 錯／不對 [False]
8. 唔知道 [Don’t know]

A18c 「『如果細菌產生抗藥性，就好難、甚至冇可能用抗生素醫治細菌感染』，你覺得係啱定錯呢？」
“‘If bacteria are resistant to antibiotics, it can be very difficult or impossible to treat the infections they cause’”

1. 啱／對 [True]
2. 錯／不對 [False]
8. 唔知道 [Don’t know]

A18d 「『對抗生素具有抗藥性嘅細菌會喺人同人之間傳播』，你覺得係啱定錯呢？」
“‘Bacteria which are resistant to antibiotics can be spread from person to person’”

1. 啱／對 [True]
2. 錯／不對 [False]
8. 唔知道 [Don’t know]

A18e「『食剩嘅抗生素，可以留番下次自己或其他人病嘅時候使用』，你覺得係啱定錯呢？」
“‘I myself or other can use the antibiotics kept for treating illness next time’”

1. 啱／對 [True]
2. 錯／不對 [False]
8. 唔知道 [Don’t know]

A18f「『進食生或未煮熟嘅食物會增加接觸或感染有害微生物嘅風險，包括耐藥性細菌』，你覺得係啱定錯呢？」
“‘Eating raw or undercooked food increase your risk of exposure or infection from harmful microorganisms including drug-resistant bacteria’”

1. 啱／對 [True]
2. 錯／不對 [False]
8. 唔知道 [Don’t know]

A18g 「『高危人士（包括孕婦、嬰幼兒、長者同埋免疫力較低人士）如避免食生或未煮熟嘅即食食物，可以減低佢哋喺食物感染耐藥性細菌嘅風險』，你覺得係啱定錯呢？」
"'If high-risk individuals (including pregnant women, young children, elderly and people with weakened immune systems) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced'"

1. 啱／對 [True]
2. 錯／不對 [False]
8. 唔知道 [Don't know]

A18h 「『徹底煮熟食物可有效殺死食物中嘅耐藥性細菌』，你覺得係啱定錯呢？」
"'Thorough cooking is effective to kill drug-resistant bacteria in food'"

1. 啱／對 [True]
2. 錯／不對 [False]
8. 唔知道 [Don't know]

A18i 「『用不同工具分開處理熟食或即食食物和生食食物可防止耐藥性細菌交叉污染』，你覺得係啱定錯呢？」
"'Using separate utensils to handle cooked or ready-to-eat foods and raw foods can prevent cross-contamination of drug resistant bacteria'"

1. 啱／對 [True]
2. 錯／不對 [False]
8. 唔知道 [Don't know]

A18j 「『正服用藥物如抗生素、胃藥(即抗胃酸藥)人士如避免食生或未煮熟嘅即食食物，可以減低佢哋喺食物感染耐藥性細菌嘅風險』，你覺得係啱定錯呢？」
"'If people taking medicines such as antibiotic and stomach medicines (antacids) avoid consuming raw or undercooked ready-to-eat food, their risk of being infected by drug-resistant bacteria from food will be reduced'"

1. 啱／對 [True]
2. 錯／不對 [False]
8. 唔知道 [Don't know]

「 問卷已經完成，多謝你接受我的訪問，拜拜！
The questionnaire ends. Thank you. Goodbye!

Appendix II: Details of Daily Progress of Enumeration

Date	**Number of enumerated cases** (Landline)	**Number of enumerated cases** (Mobile**)**	**Number of enumerated cases** (Total**)**
20251125	18	27	45
20251126	1	11	12
20251127	0	11	11
20251201	14	32	46
20251202	18	41	59
20251203	17	35	52
20251204	18	38	56
20251205	14	30	44
20251208	12	44	56
20251209	21	51	72
20251210	21	54	75
20251211	38	56	94
20251212	34	38	72
20251215	39	49	88
20251216	42	32	74
20251217	22	41	63
20251218	23	44	67
20251219	13	35	48
20251222	6	20	26
20251223	8	16	24
Total	**379**	**705**	**1084**

Appendix III: Details of Final Dispositions of Phone Calls and Response Rates

Final dispositions of phone calls	**Number of cases (Landline)**	**Number of cases (Mobile)**
(A) No. of telephone numbers sampled	27 655	50 428
(B) No. of ineligible cases		
a) Valid telephone numbers		
i) Claimed wrong number	37	103
ii) Language problem	58	56
iii) Non-residential line	338	79
iv) No target respondent	17	27
b) Invalid telephone numbers		
i) Fax / data line	188	46
ii) Non-working / out of service numbers	6 872	4 487
(C) No. of eligible cases		
a) Successfully completed interviews (I)	379	705
b) Unsuccessful cases		
i) Mid-way termination cases (R)	24	27
ii) Drop out cases such as selected eligible person not-at- home / not available (DO)	134	235
iii) Refusal cases (R)	208	327
(D) No. of cases with unknown eligibility status		
a) Answering machine	1 380	7 545
b) Busy line	749	937
c) Call blocking, password needed	54	88
d) Immediate disconnection	3 658	6 423
e) No answer	13 559	29 343
Landline* (RR$_L$) / *Mobile* (RR$_m$) *Survey Response Rates: $= \frac{Completed\ (I)}{Completed\ (I) + Refused(R) + Drop\ Out\ Cases\ (DO)}$	*50.9%*	*54.5%*
***Combined Response Rate* (RR):** $= (RR_L * P_L) + (RR_m * (1 - P_L))$ where P_L = the percentage of the total number of completed interviews coming from the landline survey (= 379/1084= 35.0%) RR_L = landline survey response rate RR_m = mobile survey response rate	*53.2%*	

Appendix IV: Details of Process of Weighting on Survey Data

This survey employed the dual-frame telephone sampling which combines a set of telephone numbers selected randomly from the landline sampling frame with another set of telephone numbers selected randomly from the mobile phone sampling frame, while individuals with both landline and mobile numbers can be sampled from both frames. In order to avoid biased estimates due to a duplication of the population in both frames or from other unknown factors, single-frame estimator method was employed to weight the survey data according to the following steps (Bankier, 1986; Wong, Zheng and Wan, 2022):

Step 1

Since each respondent has own different numbers of residential landline numbers and mobile phone numbers, their chances of being selected for interview are not equal if we use dual-frame telephone sampling. The first step of weighting procedure is to adjust the unequal chance effects of the dual-frame survey by estimating the probabilities of being selected for each respondent based on the number of landlines and the number of mobile phones owned by each respondent with the estimated totals in the target population. The probability of being sampled in the combined landline and mobile phone sampling frame for i^{th} sampled individual is derived as follow:

$$\pi_i = \frac{n_L}{N_L} \times \frac{t_i^L}{e_i^L} + \frac{n_m}{N_m} \times t_i^m$$

where $i = i^{th}$ sampled individual in this survey

n_L= the size of landline sample

N_L= the size of the landline sampling frame

t_i^L= the number of landline telephones used to receive calls in the household of i^{th} sampled individual

e_i^L= the number of eligible persons in the household of i^{th} sampled individual

n_m= the size of the mobile phone sample

N_m= the size of the mobile phone sampling frame

t_i^m= the number of mobile phones used to receive calls by i^{th} sampled individual

Design weights are defined as the inverse of probability of i^{th} sampled individual being sampled. Hence, the weighting factor 1 (WT1) is: $WT1_i = \pi_i^{-1}$. The calculations are summarised in the following table:

No. of landline no.	No. of mobile no.	No. of eligible persons in the household	Weighting factor 1
0	1	NA.	11881.411347518
0	2	NA.	5940.705673759
0	3	NA.	3960.470449173
0	4	NA.	2970.352836879
0	6	NA.	1980.235224586
0	8	NA.	1485.176418440
1	0	1	4272.736147757
1	0	3	12818.208443272
1	1	1	3142.606922820
1	1	2	4970.521851308
1	1	3	6166.022333248
1	1	4	7008.906815668
1	1	5	7635.132370686
1	1	6	8118.721920821
1	1	7	8503.425486424
1	2	1	2485.260925654
1	2	2	3504.453407834
1	2	3	4059.360960411
1	2	4	4408.380221762
1	2	5	4648.166688667
1	2	7	4956.267096479
1	3	1	2055.340777749
1	3	2	2706.240640274
1	3	3	3025.633667367
1	3	4	3215.374399866
1	3	5	3341.088339883
1	4	4	2530.550974250
1	5	2	1859.266675467
1	10	2	1043.109758048
2	1	1	1810.776665291
2	1	2	3142.606922820
2	1	3	4163.316410544
2	1	4	4970.521851308
2	2	1	1571.303461410
2	2	2	2485.260925654
2	2	3	3083.011166624
2	3	1	1387.772136848

No. of landline no.	No. of mobile no.	No. of eligible persons in the household	Weighting factor 1
2	3	2	2055.340777749
2	3	7	3131.219207730
3	1	2	2297.645309635
3	1	3	3142.606922820
3	1	6	4970.521851308
3	2	1	1148.822654818
3	2	2	1925.323363505
3	2	3	2485.260925654
3	3	4	2336.302271889
4	1	3	2523.842903262
4	1	4	3142.606922820
6	1	3	1810.776665291

Note: According to OFCA's Key Statistics for Telecommunications in HK -- Wireless Service (31.12.2025), the number of public mobile subscribers was roughly 32 359 940 in Hong Kong in September 2025 (including conventional mobile voice and data subscriptions). However, there is still no official statistics available on how many mobile numbers are actually in use by people aged 15 or above. In order to solve this problem, we added a question in this survey to ask the respondents how many mobile numbers they had (as the main user). Then we used the mean of mobile numbers as depicted from the survey result as a reference indicator to calculate the size of mobile phone sampling frame. As the mean of mobile numbers was 1.318224740321058 and the number of people aged 15 or above in the third quarter of 2025 (based on General Household Survey) was 6 354 300, the size of mobile phone sampling frame was estimated to be 8 376 395 (6 354 300 * 1.318224740321058 = 8 376 395).

Step 2

The second weighting procedure is to ensure that the age-gender distribution of survey data is in line with the prevailing distribution of the Hong Kong population. Independent population estimates by gender and age provided by the Census and Statistics Department (based on General Household Survey, 3rd Quarter 2025) are used as control totals and appropriate statistical adjustments are made to account for the inclusion probabilities and the differences in response rates across age group and gender. The second weighting factor of a particular age-gender group is calculated by dividing the population control total of that age-gender group by the estimated number of persons in that age-gender group in the survey weighted by the weighting factor 1 (WT1). The weighting factor 2 of i^{th} sampled individual ($WT2_i$) is derived from:

$$WT2_i = \frac{N_k}{W_1 k}$$

where N_k = Population size of k^{th} age-gender group

$W_1 k$= Estimated size of k^{th} age-gender group from the survey weighted by weighting factor 1

The calculation for weighting factor 2 (WT2) of specific age-gender groups are summarised in the following table:

Age group	Age-gender distribution of the population provided by C&SD #		Estimated age-gender distribution from the survey weighted by WT1*		Weighting Factor 2 (WT2)	
	Male (A)	Female (B)	Male (C)	Female (D)	Male (A ÷ C)	Female (B ÷ D)
15-24	288 300	273 700	391 636	348 485	0.736141910	0.785400698
25-34	411 700	405 400	599 567	720 568	0.686661911	0.562612072
35-44	477 400	536 500	700 623	843 306	0.681393445	0.636186787
45-54	473 800	583 600	542 497	699 759	0.873369574	0.834001749
55-64	526 000	642 500	602 943	582 782	0.872387672	1.102470437
65 or above	817 200	918 200	805 904	959 902	1.014016812	0.956556403

Land-based non-institutional population aged 15 and above (excluding foreign domestic helpers) by gender and age in the third quarter of 2025 (General Household Survey)

* The figures on the age-gender distribution from the survey weighted by weighting factor 1 were rounded off to their nearest integers.

Step 3

The final weighting factor of i^{th} sampled respondent in this survey is derived from:

$$WT\_F_i = WT1_i * WT2_i * BASE$$

where WT_F_i = final weighting factor of i^{th} sampled individual

$WT1_i$ = weighting factor 1 of i^{th} sampled individual

$WT2_i$ = weighting factor 2 of i^{th} sampled individual

BASE= sample size adjustment factor= size of total sample/ size of Hong Kong population aged 15 or above

Reference:

Bankier, Michael D. (1986). "Estimators based on several stratified samples with applications to multiple frame surveys." *Journal of the American Statistical Association* 81(396): 1074-1079

Wong, Kevin Tze-wai, Victor Zheng, and Po-san Wan. (2022). "Using a dual-frame design to improve phone surveys on political attitudes: developing a weighting strategy for limited external information in Hong Kong." *Quality & Quantity* 56(4): 2387-2414.

Appendix V: Distribution of Frequency Tables of Gender and Age

【Due to the rounding effect, the total percentage may also not equal to 100% and the total sample size of weighted results may not equal to 1,084.】

GENDER

		Unweighted		Weighted	
		Frequency	Percent	Frequency	Percent
1.	Male	510	47.0	511	47.1
2.	Female	574	53.0	573	52.9
	Total	1084	100.0	1084	100.0

AGE

		Unweighted		Weighted	
		Frequency	Percent	Frequency	Percent
1.	15-24	87	8.0	96	8.8
2.	25-34	152	14.0	139	12.9
3.	35-44	189	17.4	173	16.0
4.	45-54	166	15.3	180	16.6
5.	55-64	188	17.3	199	18.4
6.	65 or above	302	27.9	296	27.3
	Total	1084	100.0	1084	100.0