



PGEU GPUE

Pharmaceutical Group of European Union
Groupement Pharmaceutique de l'Union Européenne

ECDC SURVEY OF HEALTHCARE WORKERS' KNOWLEDGE, ATTITUDES AND BEHAVIOURS ON ANTIBIOTICS, ANTIBIOTIC USE AND ANTIBIOTIC RESISTANCE IN THE EU/EEA

**COMMUNITY
PHARMACISTS'
RESPONSES
ANALYSIS**

**EUROPEAN
ANTIBIOTIC
AWARENESS DAY**



A European Health Initiative



Contents

EXECUTIVE SUMMARY.....	4
CAPABILITY	4
OPPORTUNITIES.....	4
BEHAVIOUR	4
RESOURCES.....	5
CAMPAIGN AND TRAINING	5
AWARNESS OF NATIONAL ACTIONS PLANS AND EUROPEAN ANTIBIOTIC AWARENESS DAY.....	5
SAMPLE SIZE	6
A) Perceived capability as assessed by knowledge test on antibiotics, antibiotic use and antibiotic resistance	7
1. I know what information to give to individuals about prudent use of antibiotics and antibiotic resistance	7
2. I have sufficient knowledge about how to use antibiotics appropriately for my current practice.	8
B) Actual capability as assessed by knowledge test on antibiotics, antibiotic use and antibiotic resistance	9
General overview	9
1. Antibiotics are effective against viruses.....	11
2. Antibiotics are effective against cold and flu	12
3. Unnecessary use of antibiotics makes them become ineffective	13
4. Taking antibiotics has associated side effects or risks such as diarrhoea, colitis, allergies	14
5. Every person treated with antibiotics is at an increased risk of antibiotic resistant infection .	15
6. Antibiotic resistant bacteria can spread from person to person	16
7. Healthy people can carry antibiotic resistant bacteria	17
8. The use of antibiotics to stimulate growth in farm animals is legal in the EU	18
C) Opportunities (physical or social environments that influence/enable behaviour).....	19
1. I have easy access to guidelines I need on managing infections.....	19
2. I have easy access to the materials I need to give advice on prudent antibiotic use and antibiotic resistance	21
3. I have good opportunities to provide advice on prudent antibiotic use to individuals	23
D) Behaviour related to giving out resources and advice	25
1. How often did you prescribe OR dispense OR administer antibiotics during the last one week?	26
2. How often did you give out resources (e.g. leaflets or pamphlets) on prudent antibiotic use or management of infections to individuals during the last one week?	27
3. How often did you give out advice related to prudent antibiotic use or management of infections to an individual during the last one week?	28

E) Resources used by healthcare workers in management of infections	29
1. In the management of infections, which of these do you use regularly?	29
2. If yes, how did you first get this information about avoiding unnecessary prescribing OR administering OR dispensing of antibiotics?	31
F) Campaign and training	33
1. What initiatives are you aware of in your country which focus on antibiotic awareness and resistance?	33
2. There has been good promotion of prudent use of antibiotics and antibiotic resistance in my country	35
G) Awareness of national action plans, European Antibiotic Awareness Day	37
1. Have you heard of EAAD?	37
2. On which topics would you like to receive more information?	39

EXECUTIVE SUMMARY

This report provides an analysis of community pharmacists' responses (n= 1525) to the European Centre for Disease Prevention and Control (ECDC) [Survey of healthcare workers' knowledge, attitudes and behaviours on antibiotics, antibiotic use and antibiotic resistance in the EU/EEA](#).

The aim of this analysis is to provide a separate overview of responses provided by community pharmacists order to allow comparison across European countries and other healthcare professions. This can inform future policies/projects on antimicrobial resistance both at national and at EU level.

Key findings of the survey:

CAPABILITY

- Community pharmacists are overall very confident about their **perceived capability** to advice individuals about prudent use of antibiotics and antibiotic resistance
- In terms of **actual capability** on antibiotics, antibiotic use and antibiotic resistance, community pharmacists (6.26/7 on knowledge test) score worse than medical doctors (6.56/7) but better than nurses (6.22/7), dentists (6.18/7) and pharmacy technicians (6.03/7).

OPPORTUNITIES

- Fewer community pharmacists consider that they have **easy access to guidelines** needed to **manage infections** (75.5%) compared to hospital pharmacy colleagues (84.5%) and medical doctors working in community settings (82.1%), with strong differences existing across European countries.
- More community pharmacists (75.5%) consider that they have **easy access to materials** needed to **give advice** on prudent antibiotic use and antibiotic resistance compared to medical doctors working in community settings (69.7%), with a similar percentage for hospital pharmacists (76.6%).

BEHAVIOUR

- The **setting** in which respondents with direct patient/public involvement **prescribe OR dispense OR administer antibiotics at least once a week** is the **pharmacy** (84.2%, with 73.2% indicating at least one a day), followed by the hospital (66.5%) and the community (61.4%)
- The frequency with which respondents **give out resources** (e.g. leaflets or pamphlets) on prudent antibiotic use or management of infections to individuals during the last one week is comparable across all settings.
- The **setting** in which respondents with direct patient/public involvement **provided advice** at least once a week related to prudent antibiotic use or management of infections to an individual during the last one week is the **pharmacy** (68.4%), compared to 67.3% in the community and 46.5% in the hospital.

RESOURCES

- Within a **pharmacy**, the **resources** most used by respondents in the **management of infections** are continuous education training courses (44.4%) followed by clinical practice guidelines 38.3 % and professional resources/publications 34.5%. Remarkable is the low use of clinical guidelines (38.3%) in a pharmacy compared to the community (72.1%) and hospital setting (71.7%). There exist strong differences across European countries in terms of the type of resources respondents use in pharmacies for the management of infections.

CAMPAIGN AND TRAINING

- In the majority of countries, most community pharmacists seemed to be unsure of/disagree with the statement that there have been good **promotion of prudent use of antibiotics and antibiotic resistance in their country**, which is in line with the responses of other professions.

AWARNESS OF NATIONAL ACTIONS PLANS AND EUROPEAN ANTIBIOTIC AWARENESS DAY

- The minority of community pharmacists (28%) is aware of the **European Antibiotic Awareness Day** (EAAD), which is slightly lower than the average of all respondents (32.4%)
- Community pharmacists would like to **receive more information on several topics** related to antimicrobial resistance, such as resistance to antibiotics, links between the health of humans, animals and the environment, how to use antibiotics and medical conditions for which antibiotics are used among others.

SAMPLE SIZE

Out of all the respondents indicating they are pharmacists' (N=3258), respondents considered as 'community pharmacists' were selected with the following criteria:

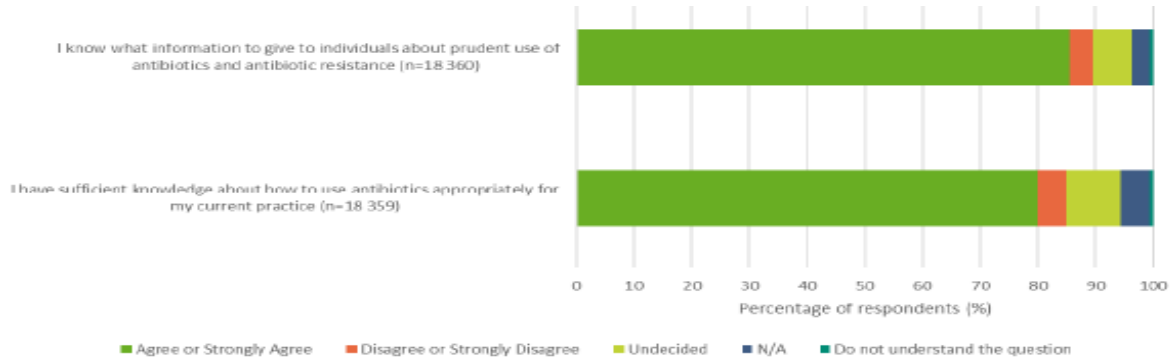
- **Initial selection - Setting:** including respondents who ticked **"Community" or "Pharmacy"** (N=1835)
- **Then sub-selection - Role:** from the above, including **only "Generalist", "Management", "Not specified", "Not translated", "Other", "blank"** (thus excluding "Academia/Research", "Public Health", "Scientist", "Specialist infection", "Specialist non-infection").

This leaves **1525 respondents considered as "community pharmacists"** (from the initial N=3258 respondents that replied that they were pharmacists).

Country	Number of responses
Austria	81
Belgium	18
Bulgaria	7
Croatia	8
Cyprus	1
Czech Republic	1
Denmark	47
Estonia	23
Finland	105
France	11
Germany	29
Greece	63
Hungary	1
Iceland	1
Ireland	4
Italy	553
Latvia	1
Malta	2
Netherlands	4
Norway	6
Poland	161
Portugal	135
Romania	18
Slovakia	7
Slovenia	1
Spain	43
Sweden	54
United Kingdom	140
TOTAL	1525

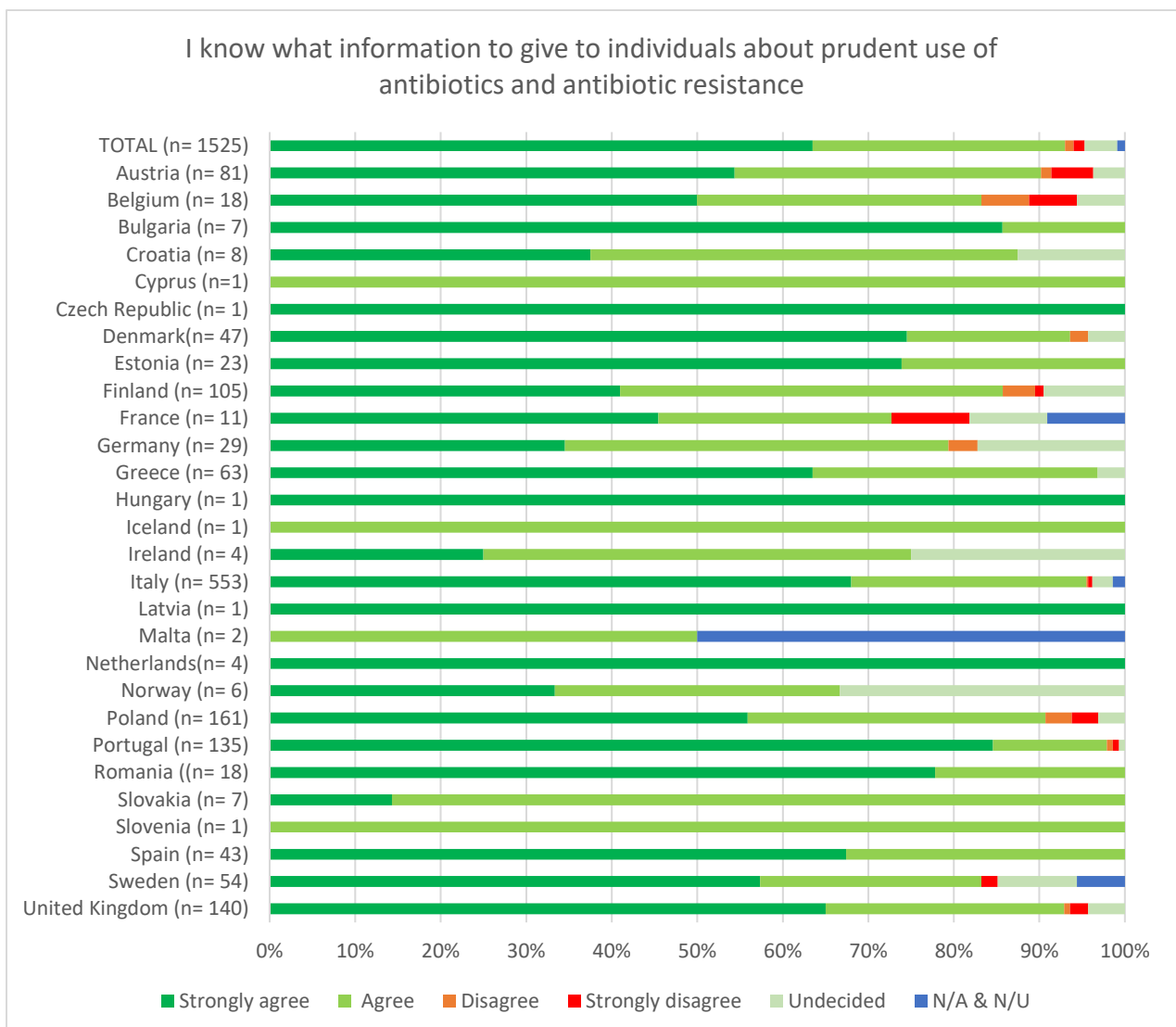
A) Perceived capability as assessed by knowledge test on antibiotics, antibiotic use and antibiotic resistance

All healthcare professionals:



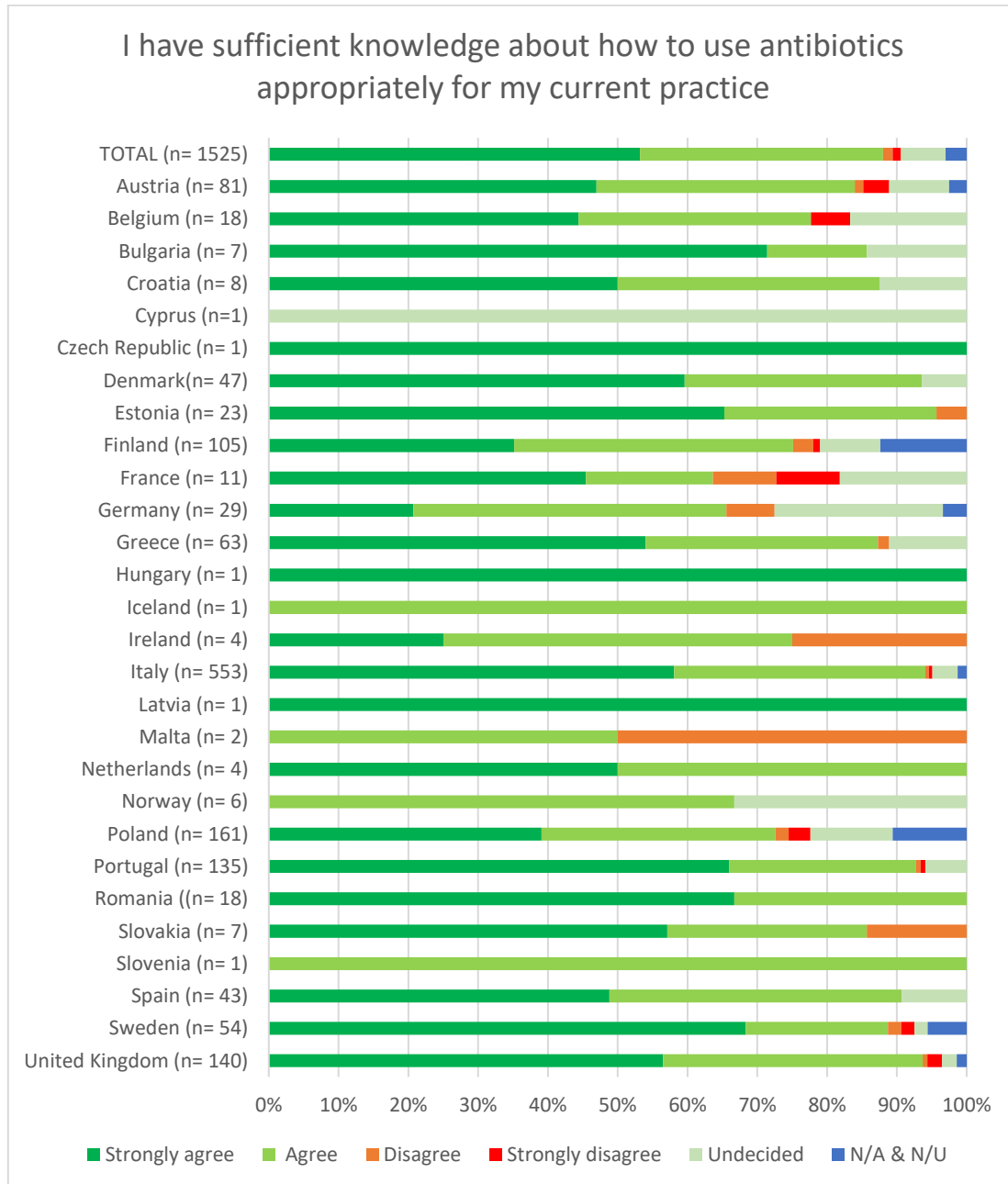
1. I know what information to give to individuals about prudent use of antibiotics and antibiotic resistance

Community pharmacists:



2. I have sufficient knowledge about how to use antibiotics appropriately for my current practice

Community pharmacists:



B) Actual capability as assessed by knowledge test on antibiotics, antibiotic use and antibiotic resistance

Table 9. Percentage of respondents who answered each key knowledge question correctly (all healthcare workers), EU/EEA

Key knowledge question (n)	Correct answer	% Correct (country range)	% Incorrect (country range)	% Unsure (country range)
Antibiotics are effective against viruses (n=18 357)	False	97.5 (91.7-100.0)	1.7 (0.0-8.3)	0.8 (0.0-5.6)
Antibiotics are effective against cold and flu (n=18 356)	False	97.0 (89.5-100.0)	1.7 (0.0-7.0)	1.3 (0.0-8.3)
Taking antibiotics has associated side effects or risks such as diarrhoea, colitis, allergies (n=18 356)	True	96.5 (88.9-98.7)	1.9 (0.0-5.6)	1.7 (0.0-11.1)
Unnecessary use of antibiotics makes them become ineffective (n=18 356)	True	94.0 (85.3-99.1)	4.1 (0.0-11.4)	1.9 (0.0-6.3)
Healthy people can carry antibiotic resistant bacteria (n=18 348)	True	88.2 (66.5-97.1)	3.8 (0.0-13.0)	8.0 (2.2-20.5)
Antibiotic resistant bacteria can spread from person to person (n=18 350)	True	86.9 (66.7-95.8)	7.4 (1.4-20.4)	5.7 (1.8-16.1)
Every person treated with antibiotics is at an increased risk of antibiotic resistant infection (n=18 354)	True	75.0 (60.2-93.4)	13.7 (0.0-29.5)	11.3 (1.5-21.9)

General overview

Table 10. Average score for the seven knowledge questions, and the percentage of respondents answering all questions correctly, by country, EU/EEA

Country	Number of respondents	Number of respondents who provided and completed all seven key knowledge questions (% total number of survey participants)	Average score (out of 7)	% of respondents answering all questions correctly (7/7)
Austria	1 125	1 124 (99.9)	6.17	53
Belgium	399	399 (100.0)	6.38	59
Bulgaria	31	31 (100.0)	6.16	48
Croatia	74	74 (100.0)	6.58	73
Cyprus	108	108 (100.0)	6.34	61
Czech Republic	964	963 (99.9)	6.48	62
Denmark	773	773 (100.0)	6.24	49
Estonia	128	127 (99.2)	5.87	40
Finland	770	769 (99.9)	6.48	64
France	870	870 (100.0)	6.58	69
Germany	406	406 (100.0)	6.55	68
Greece	221	221 (100.0)	6.17	48
Hungary	378	378 (100.0)	6.02	46
Iceland	44	44 (100.0)	6.43	61
Ireland	137	137 (100.0)	6.61	71
Italy	2 167	2 167 (100.0)	6.19	50
Latvia	242	239 (98.8)	5.82	41
Lithuania	137	137 (100.0)	6.56	66
Luxembourg	36	36 (100.0)	6.06	53
Malta	57	57 (100.0)	6.04	47
Netherlands	190	190 (100.0)	6.42	57
Norway	1 466	1 465 (99.9)	6.40	59
Poland	1 122	1 118 (99.6)	6.48	68
Portugal	386	385 (99.7)	6.33	53
Romania	587	586 (99.8)	6.24	56
Slovakia	436	436 (100.0)	6.15	48
Slovenia	95	95 (100.0)	6.39	51
Spain	1 892	1 892 (100.0)	6.49	65
Sweden	720	718 (99.7)	6.38	55
United Kingdom	2 404	2 403 (100.0)	6.36	59
EU/EEA	18 365	18 348 (99.9)	6.35	58

Table 11. Average score on the seven key knowledge questions per professional group, and the percentage of respondents from each profession who achieved all correct answers (7/7)

Profession	Number of respondents	Number of respondents answering all seven key knowledge questions (% of total number of participants)	Average score	% of respondents answering all questions correctly
Medical doctor	7 351	7 350 (100.0)	6.56	68
Scientist	461	461 (100.0)	6.47	64
Pharmacist	3 258	3 256 (99.9)	6.41	59

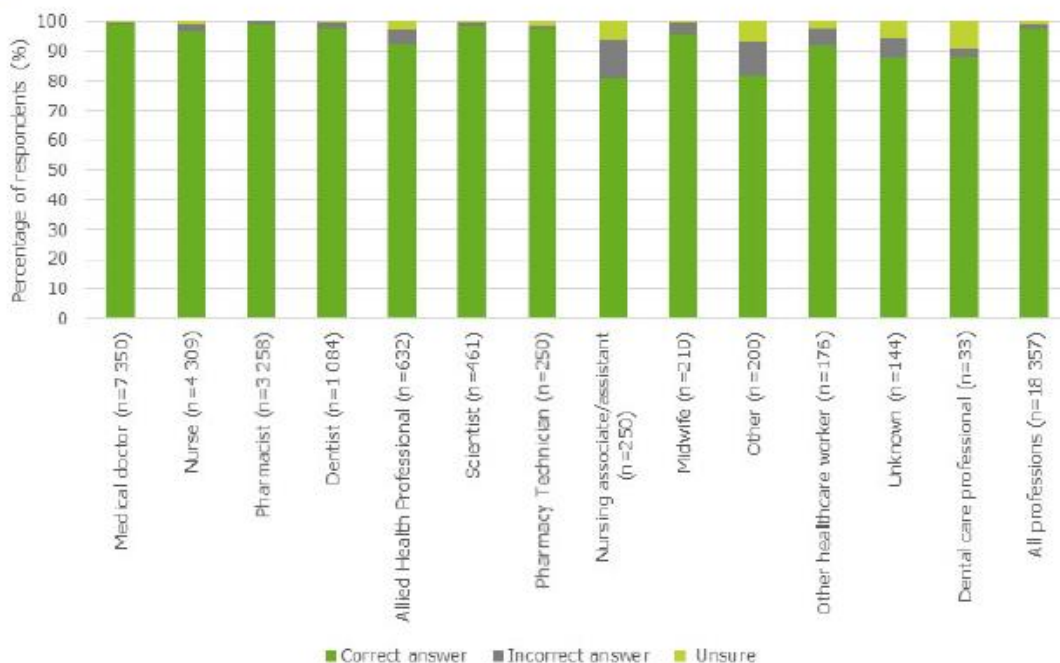
Community pharmacists:

Country	Number of responses	Average score (out of 7)
Austria	81	6.19
Belgium	18	6.17
Bulgaria	7	6.00
Croatia	8	6.50
Cyprus	1	7.00
Czech Republic	1	6.00
Denmark	47	6.11
Estonia	23	5.78
Finland	105	6.40
France	11	6.55
Germany	29	6.38
Greece	63	6.21
Hungary	1	6.00
Iceland	1	5.00
Ireland	4	7.00
Italy	553	6.09
Latvia	1	7.00
Malta	2	7.00
Netherlands	4	6.00
Norway	6	6.33
Poland	161	6.45
Portugal	135	6.19
Romania	18	6.61
Slovakia	7	6.29
Slovenia	1	6.00
Spain	43	6.37
Sweden	54	6.22
United Kingdom	140	6.67
TOTAL	1525	6.26

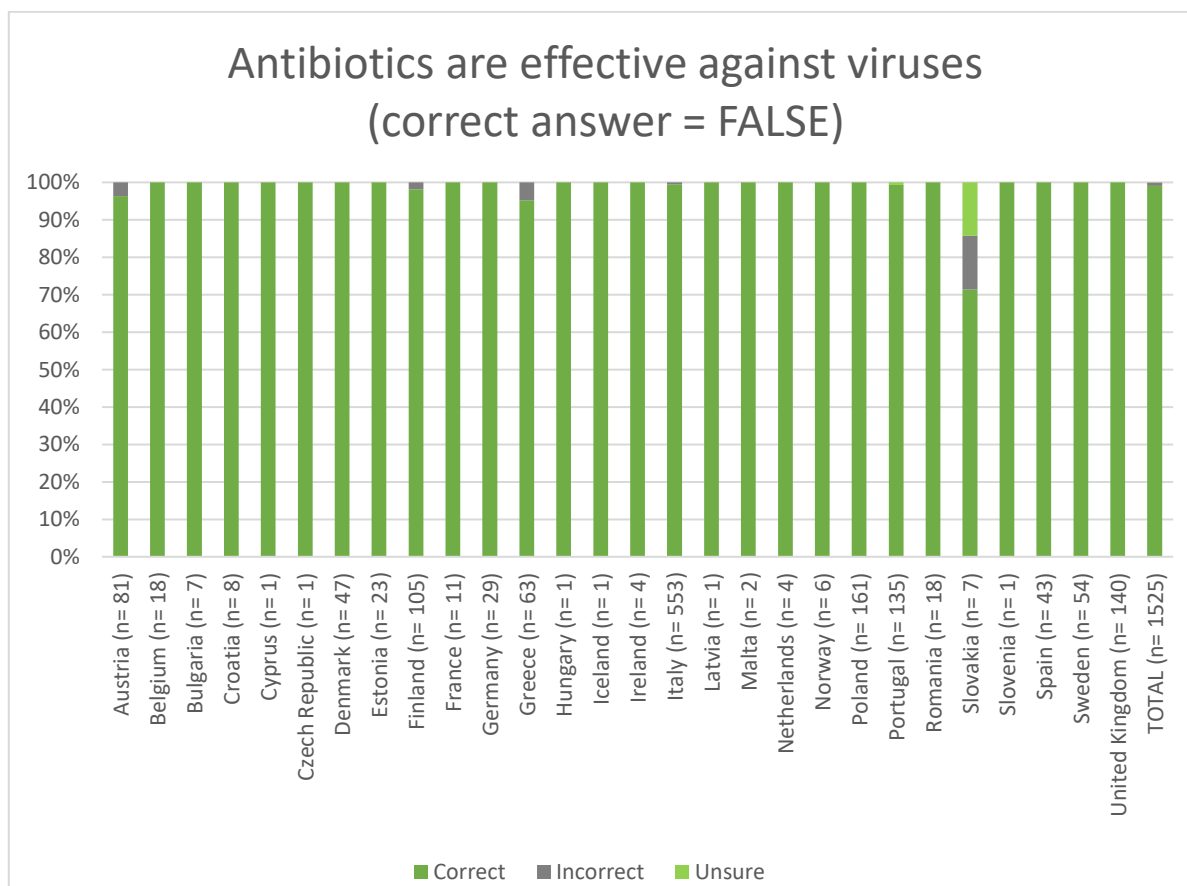
1. Antibiotics are effective against viruses

All healthcare professionals:

Figure 5. Knowledge question 1: Antibiotics are effective against viruses (correct answer=FALSE)



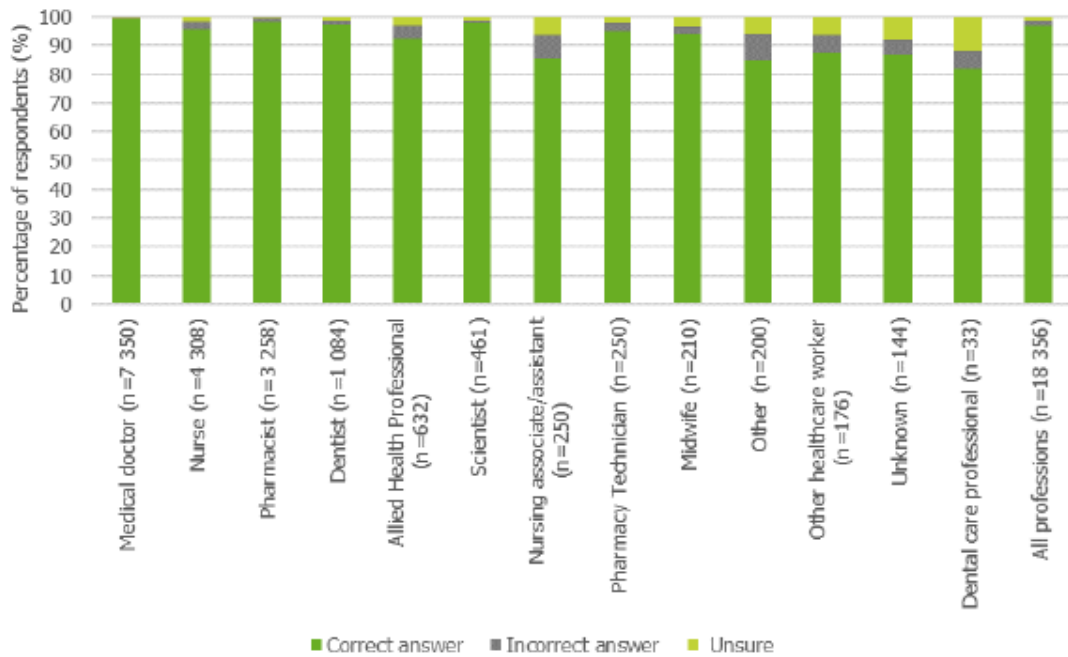
Community pharmacists:



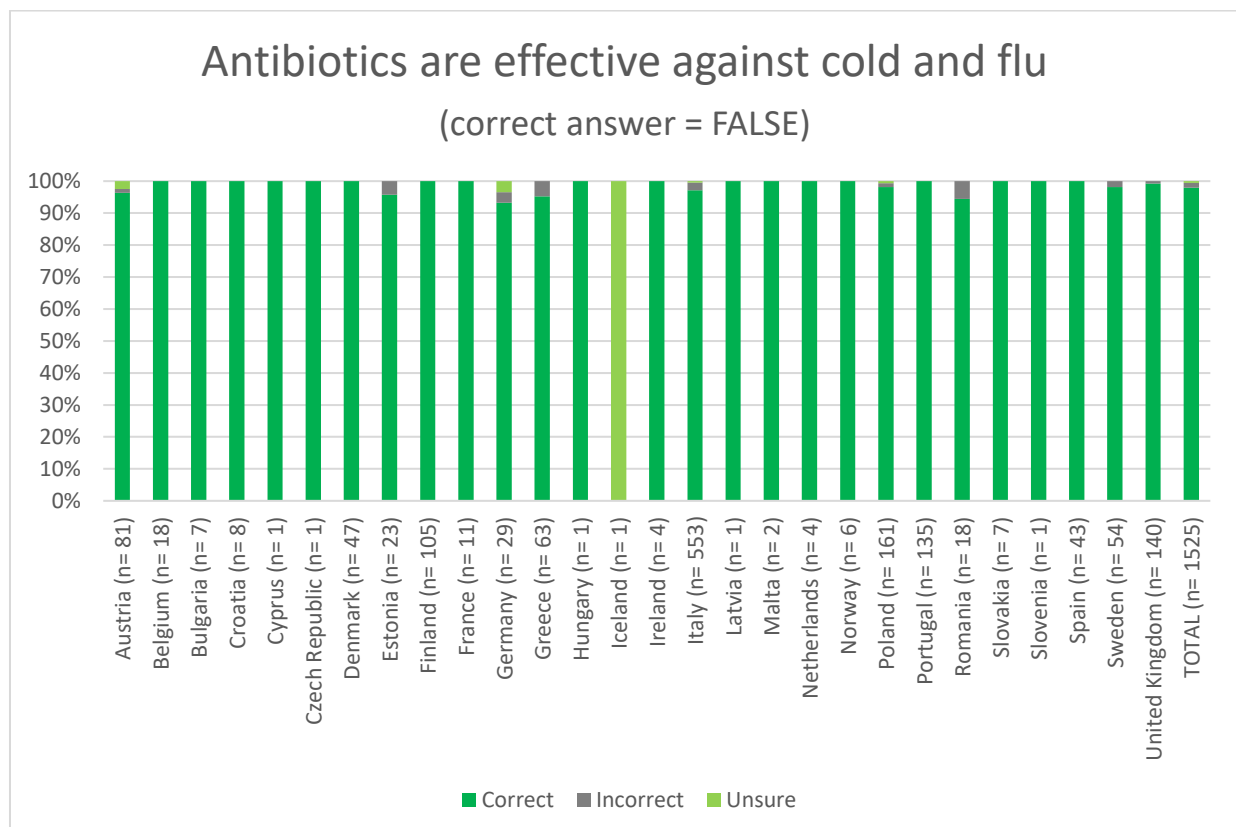
2. Antibiotics are effective against cold and flu

All healthcare professionals:

Figure 6. Knowledge question 2: Antibiotics are effective against cold and flu: (correct answer=FALSE)



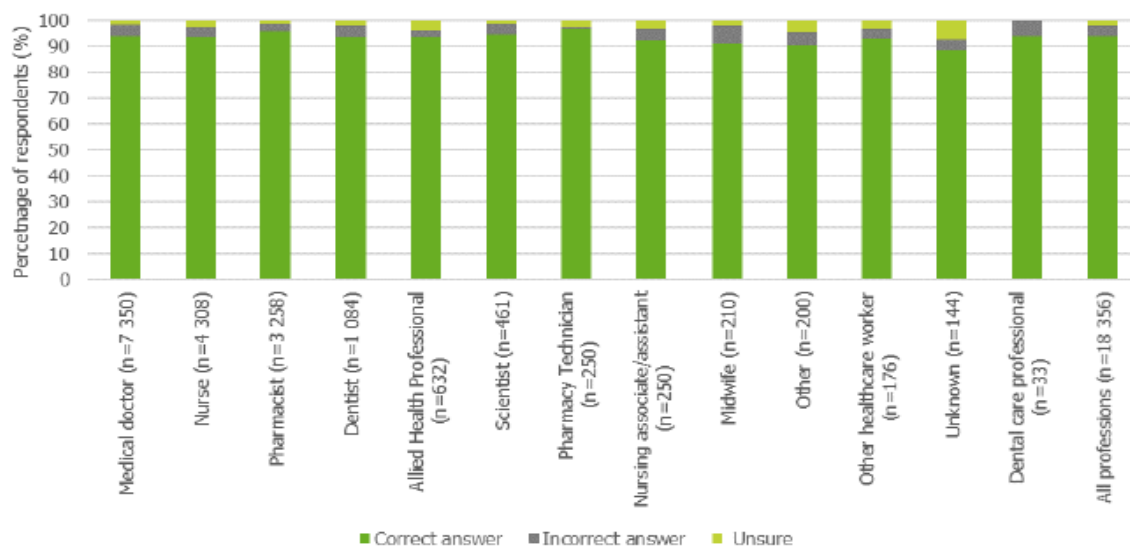
Community pharmacists:



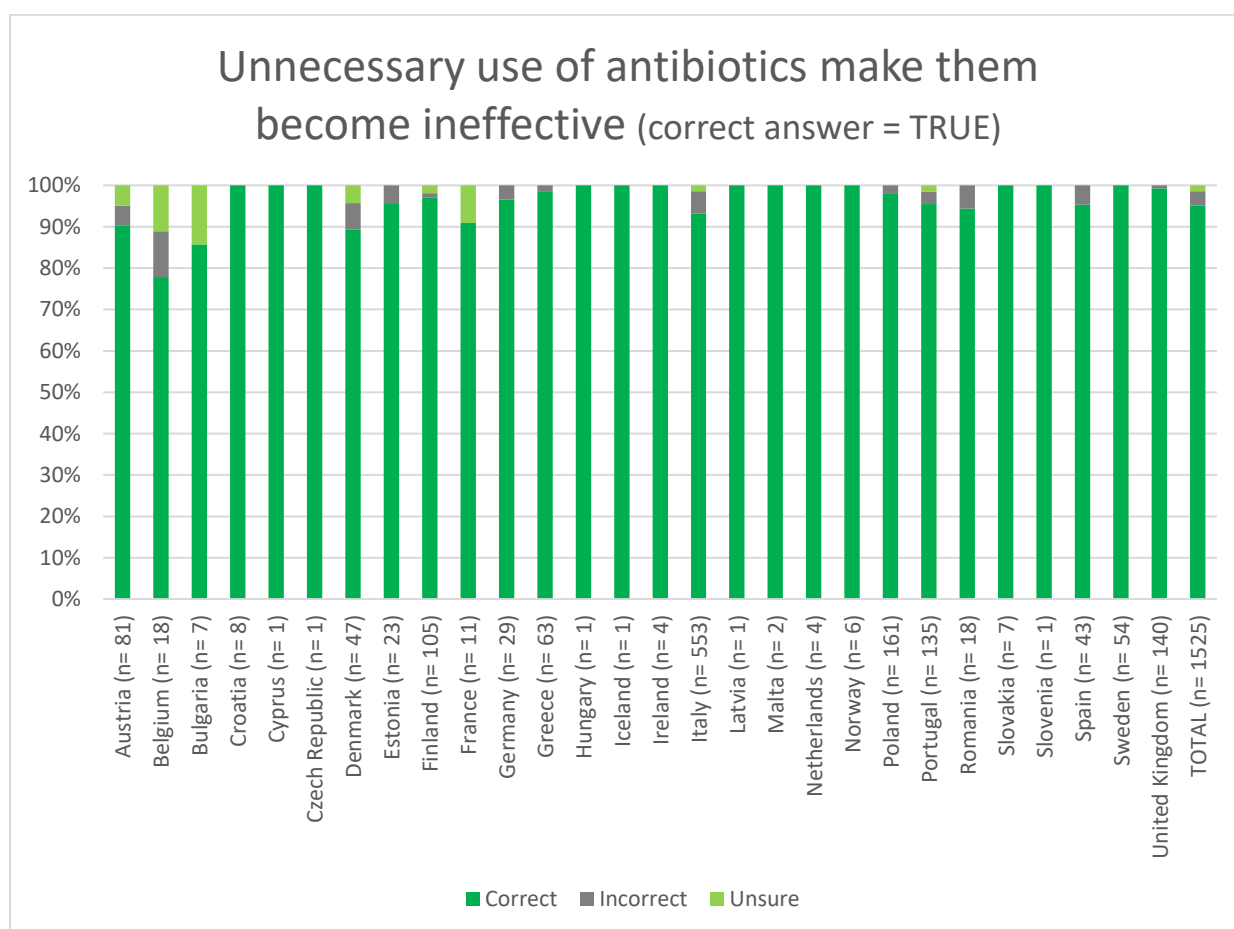
3. Unnecessary use of antibiotics makes them become ineffective

All healthcare professionals:

Figure 7. Knowledge question 3: Unnecessary use of antibiotics makes them become ineffective (Correct answer=TRUE)



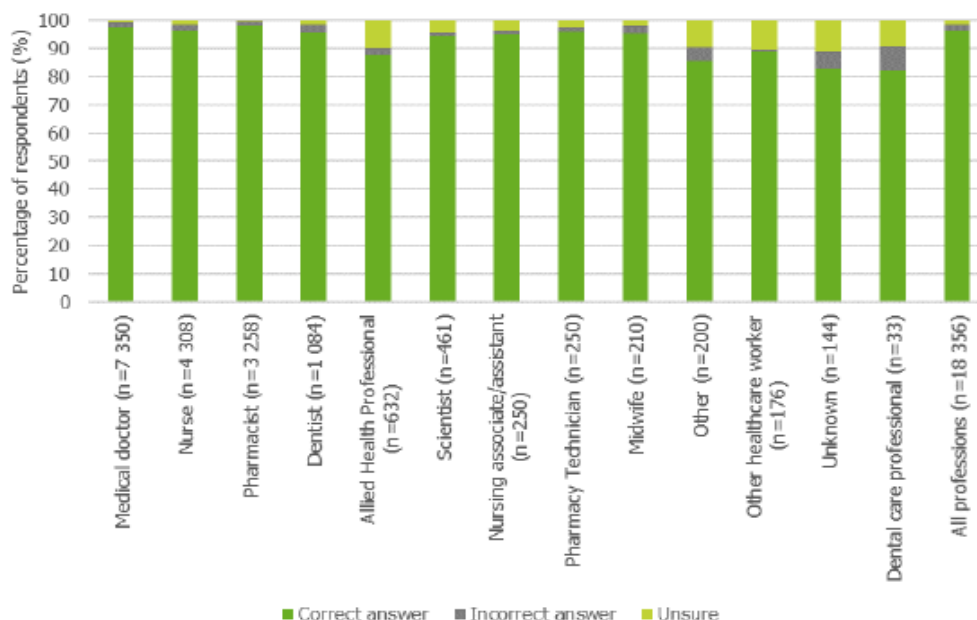
Community pharmacists:



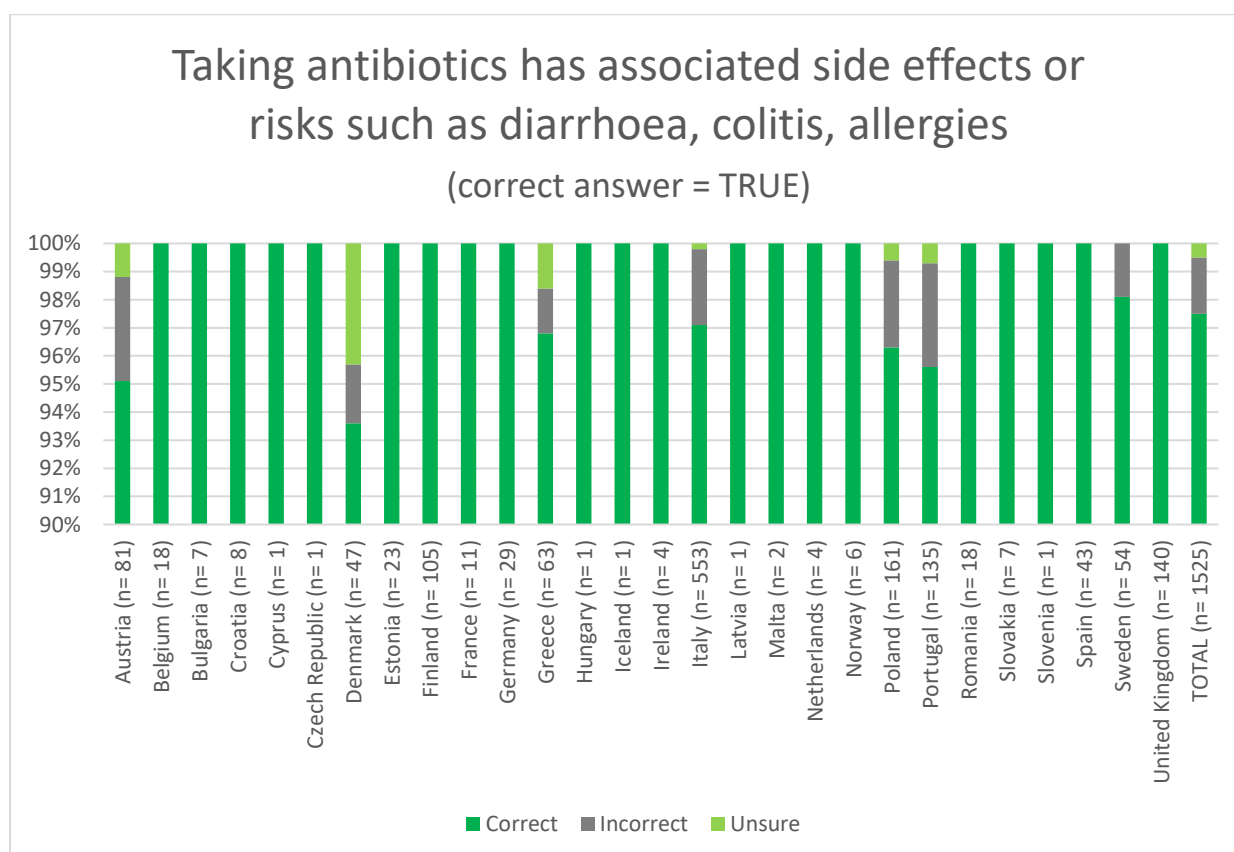
4. Taking antibiotics has associated side effects or risks such as diarrhoea, colitis, allergies

All healthcare professionals:

Figure 8. Knowledge question 4: Taking antibiotics has associated side effects or risks such as diarrhoea, colitis, allergies (Correct answer=TRUE)



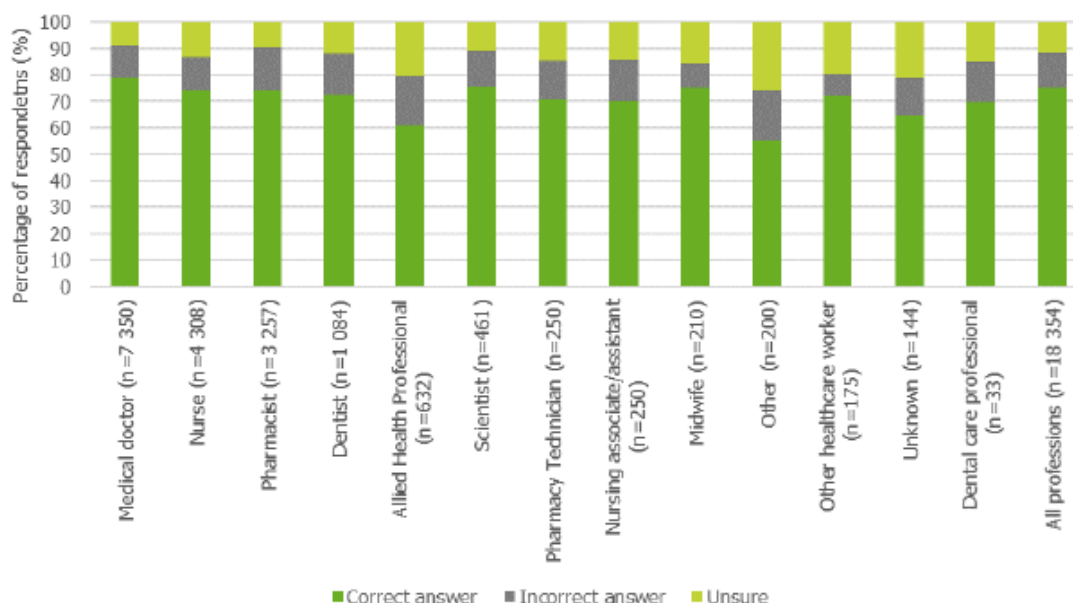
Community pharmacists:



5. Every person treated with antibiotics is at an increased risk of antibiotic resistant infection

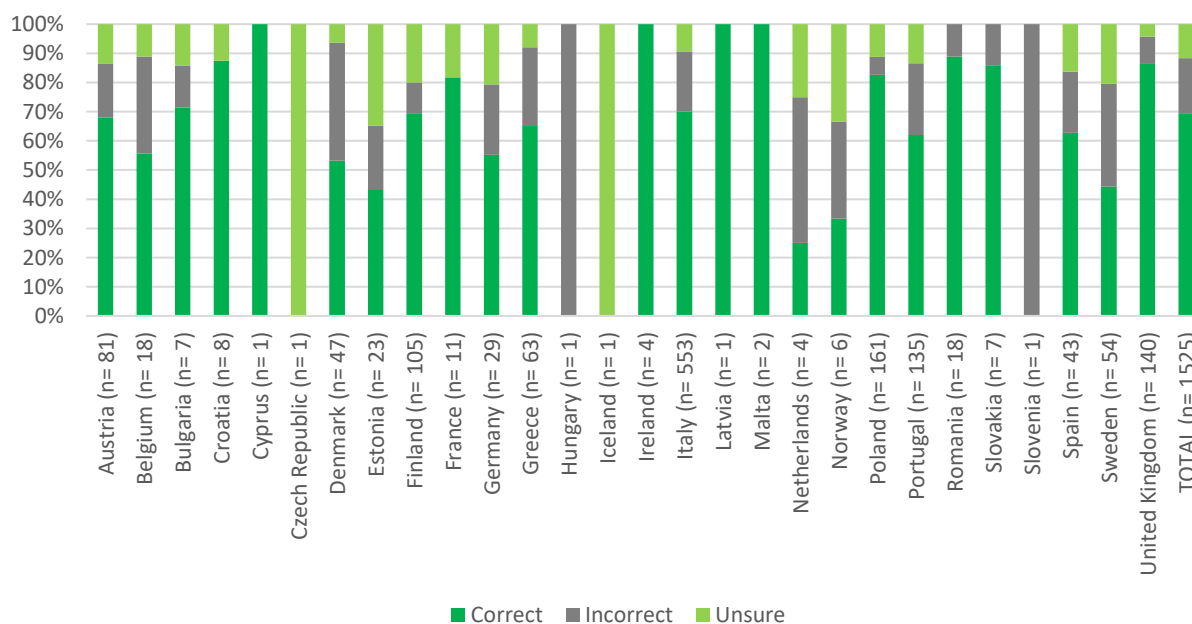
All healthcare professionals:

Figure 9. Knowledge question 5: Every person treated with antibiotics is at an increased risk of antibiotic resistant infection (Correct answer=TRUE)



Community pharmacists:

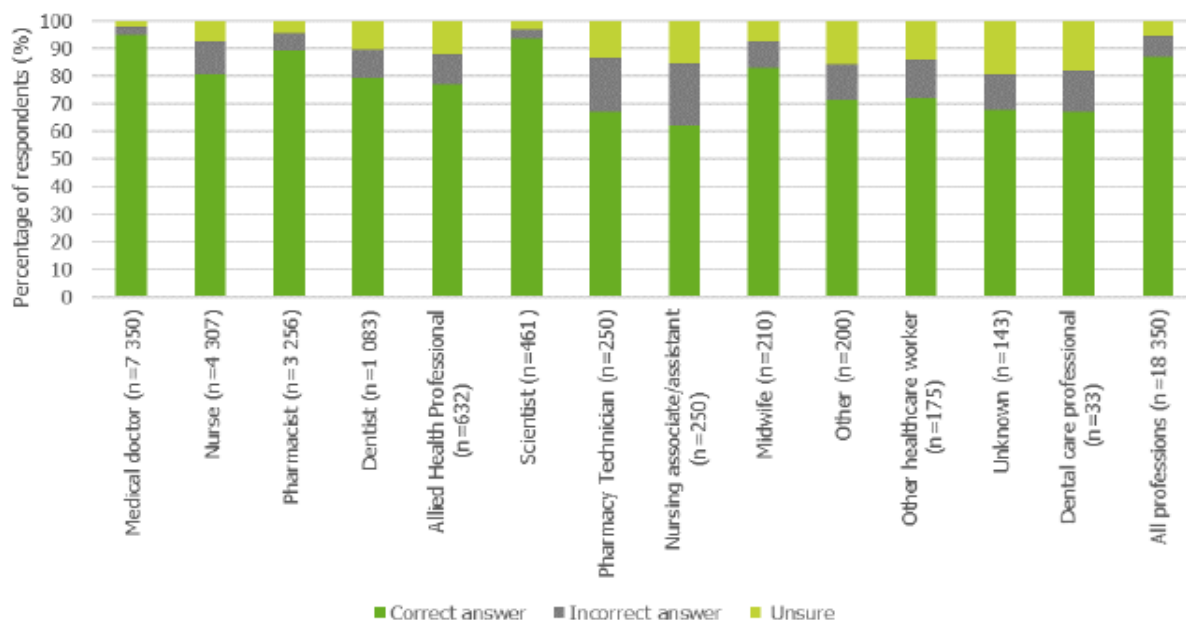
Every person treated with antibiotics is at an increased risk of antibiotic resistant infection
(correct answer = TRUE)



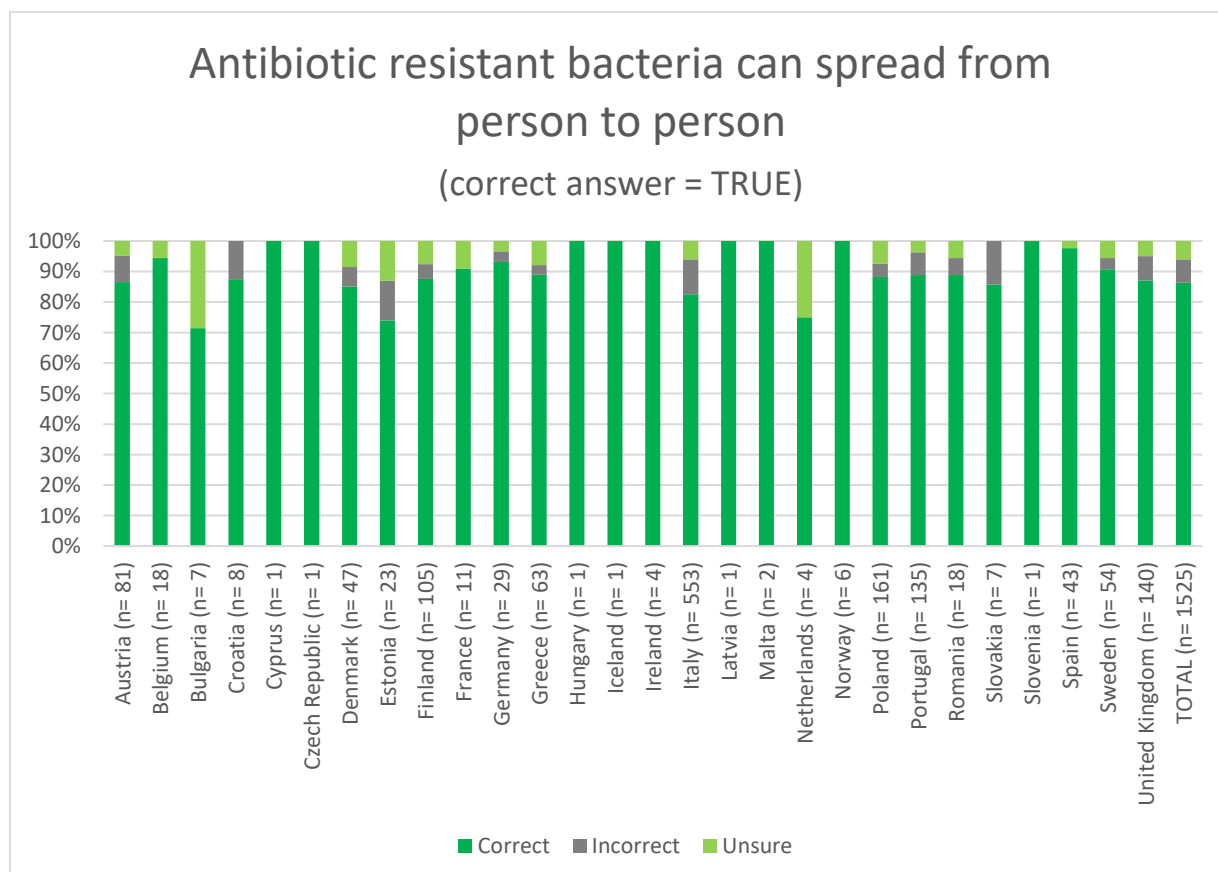
6. Antibiotic resistant bacteria can spread from person to person

All healthcare professionals:

Figure 10. Knowledge question 6: Antibiotic resistant bacteria can spread from person to person (Correct answer=TRUE)



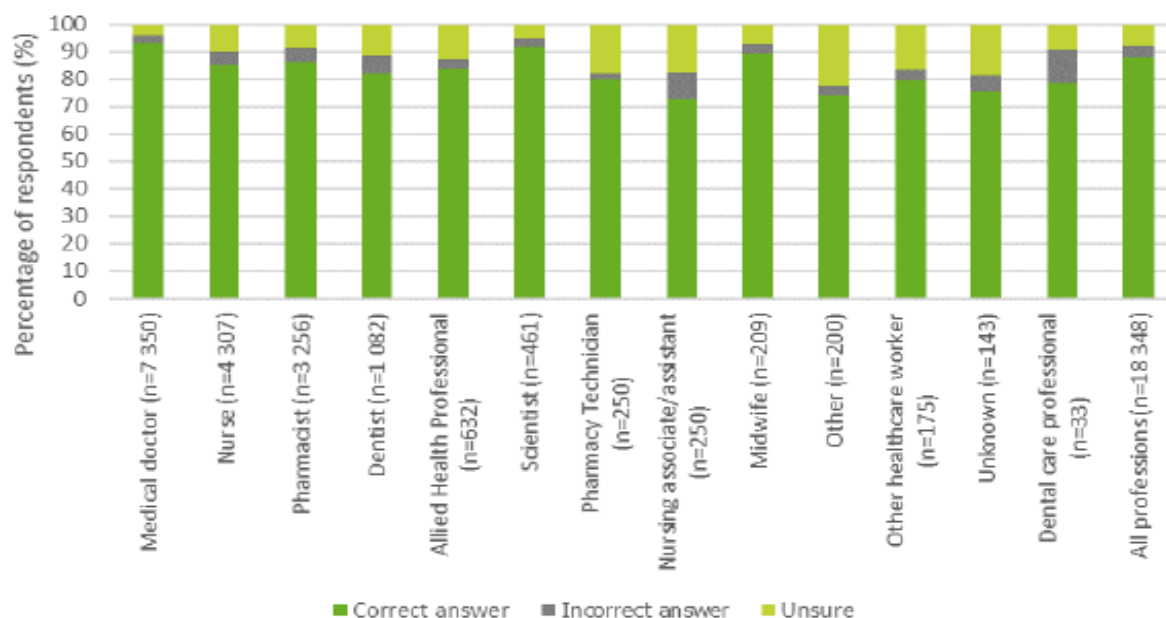
Community pharmacists:



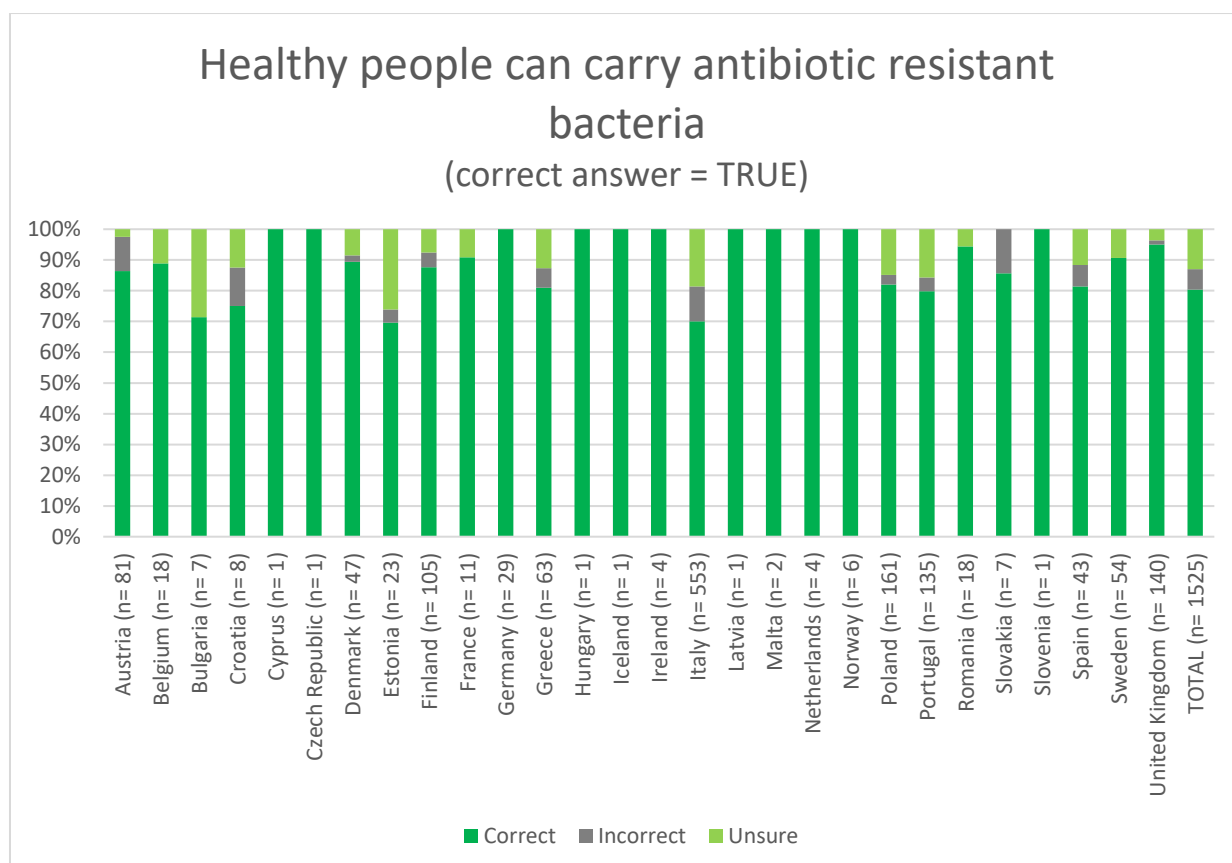
7. Healthy people can carry antibiotic resistant bacteria

All healthcare professionals:

Figure 11. Knowledge question 7: Healthy people can carry antibiotic resistant bacteria (Correct answer=TRUE)



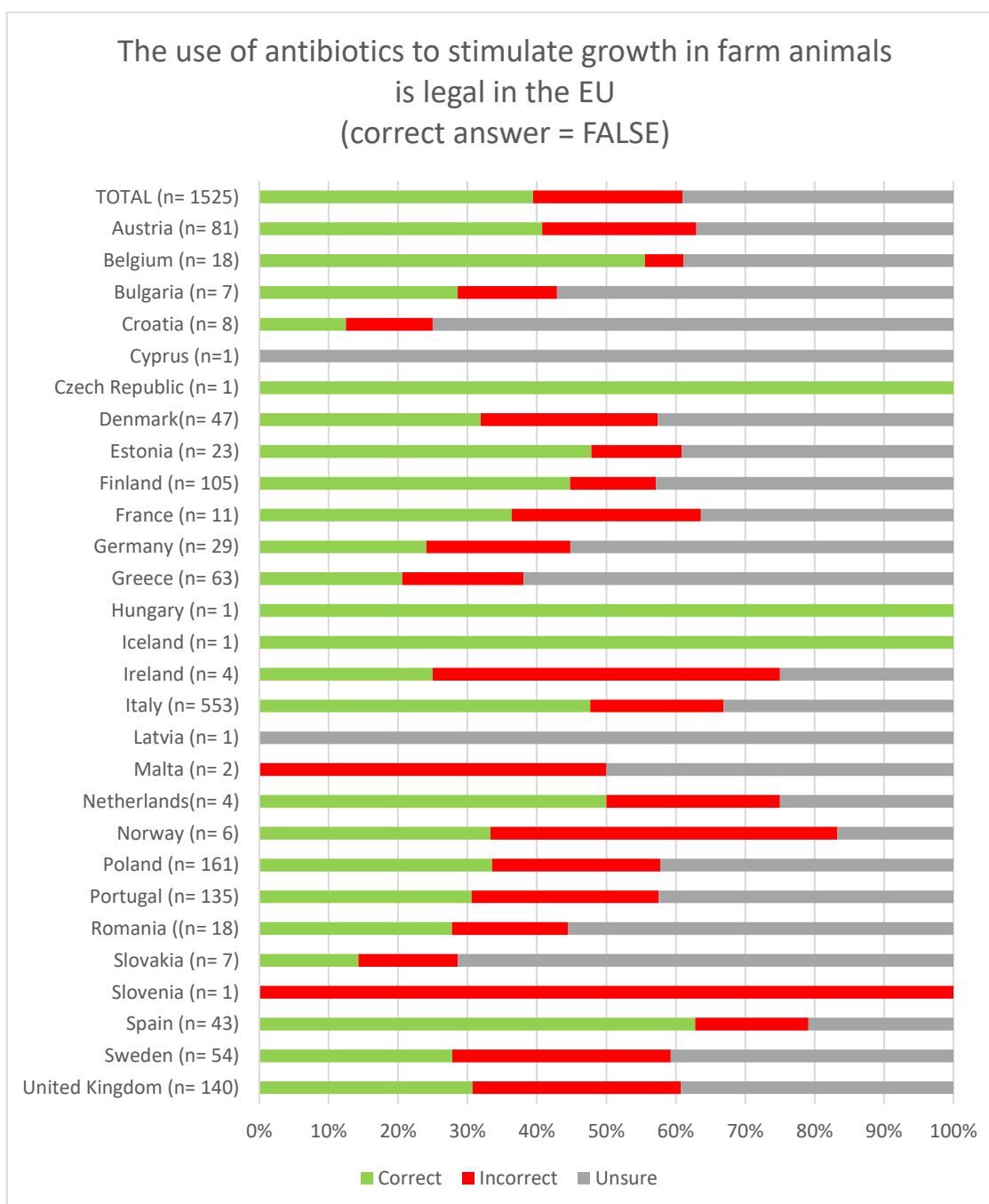
Community pharmacists:



8. The use of antibiotics to stimulate growth in farm animals is legal in the EU

Only 27% (n=4 998) of respondents knew it is illegal to use antibiotics to stimulate growth in farm animals in the EU, most were either unsure (44%, n=8 054) or believed this to be legal practice (29%, n=5 291).

Community pharmacists:



C) Opportunities (physical or social environments that influence/enable behaviour)

Table 12. Proportion of respondents who have direct patient/public involvement and who agreed or disagreed with the following statements in relation to the management of infections and providing advice

Opportunity statement	Agree or strongly agree (%)	Disagree or strongly disagree (%)	Undecided (%)	N/A (%)	Do not understand the question (%)
I have easy access to guidelines I need on managing infections (n=14 301)	75.1	9.0	12.4	3.0	0.5
I have easy access to the materials I need to give advice on prudent antibiotic use and antibiotic resistance (n=14 299)	67.5	12.9	17.1	2.1	0.4
I have good opportunities to provide advice on prudent antibiotic use to individuals (n=14 296)	72.3	9.5	14.9	2.9	0.4

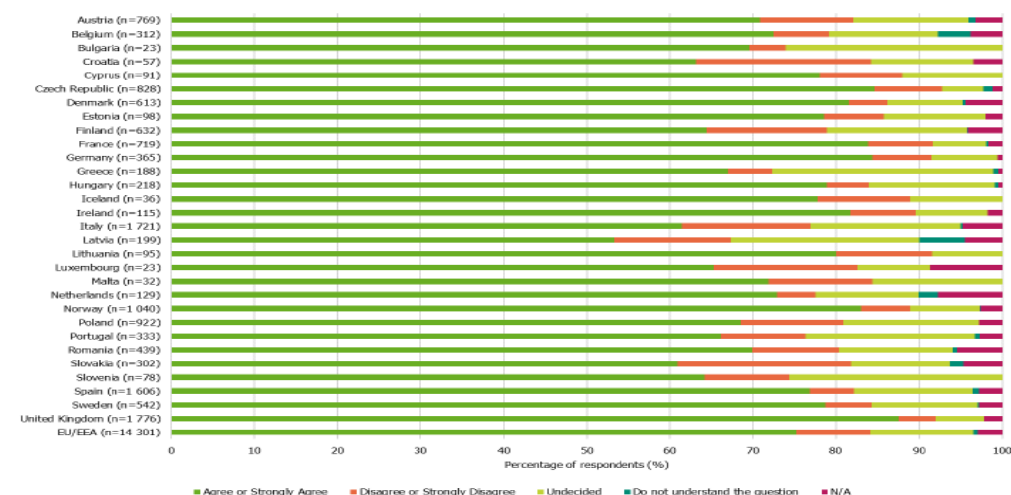
1. I have easy access to guidelines I need on managing infections

Table 13. Percentage of respondents by profession and setting who agreed or disagreed with the statement 'I have easy access to guidelines I need on managing infections'

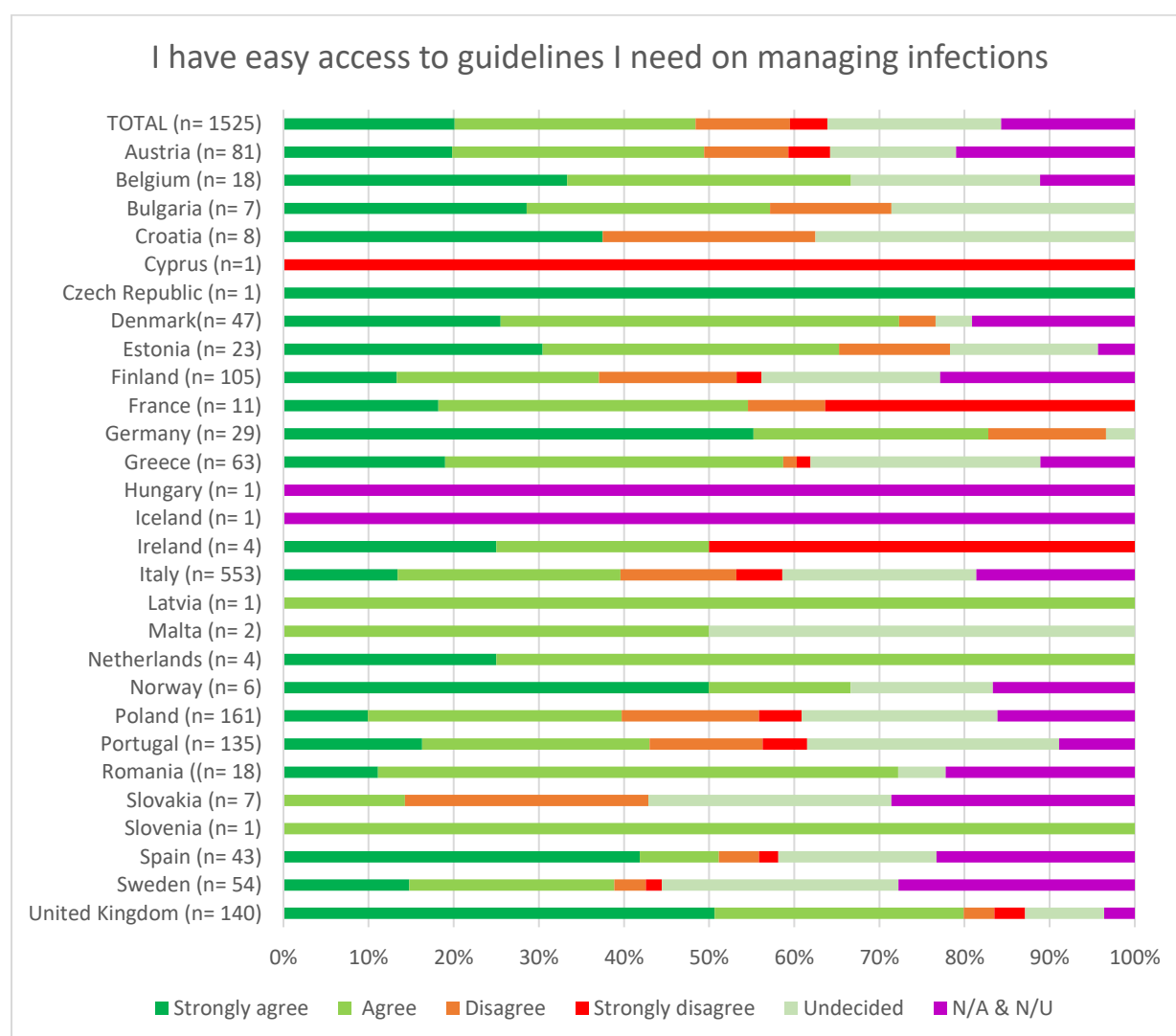
Profession	Setting	Agree or strongly agree (%)	Disagree or strongly disagree (%)	Undecided (%)	Not applicable (%)	Do not understand (%)
Pharmacist (n=3 078)	Hospital (n=1 152)	84.5	5.2	8.4	1.6	0.3
	Community (n=208)	75.5	10.1	9.1	4.3	1.0
	Other settings including pharmacy (n=1 718)	53.1	16.2	21.0	9.1	0.5
Pharmacy technician (n=227)	Hospital (n=94)	67.0	7.4	9.6	16.0	0.0
	Community (n=37)	83.8	5.4	2.7	8.1	0.0
	Other settings including pharmacy (n=96)	47.9	13.5	22.9	11.5	4.2

All healthcare professionals:

Figure 17. Percentage of respondents with direct patient/public involvement who agreed/disagreed with the statement, 'I have easy access to guidelines I need on managing infections', by country (n=14 301)



Community pharmacists:



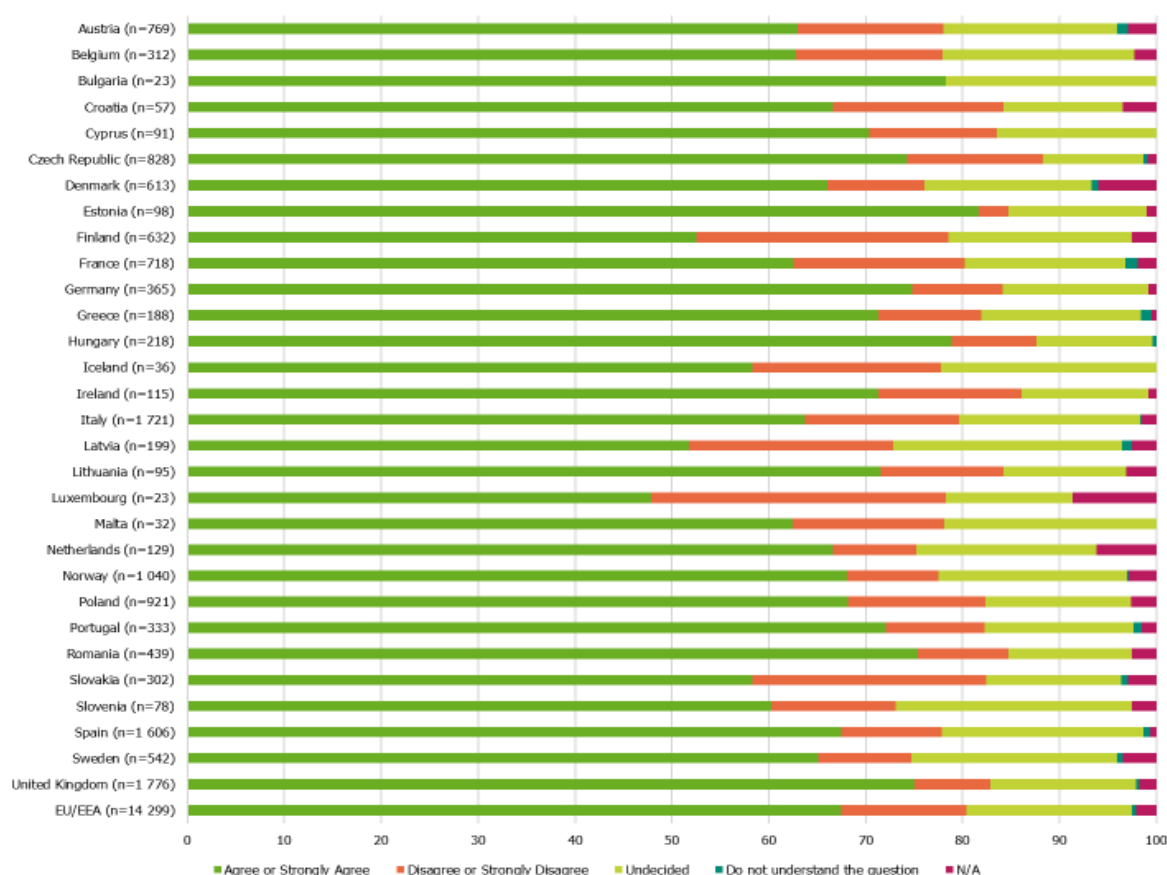
2. I have easy access to the materials I need to give advice on prudent antibiotic use and antibiotic resistance

Table 14. Percentage of respondents by profession and setting who agree or disagree with the statement, 'I have easy access to the materials I need to give advice on prudent antibiotic use and antibiotic resistance'

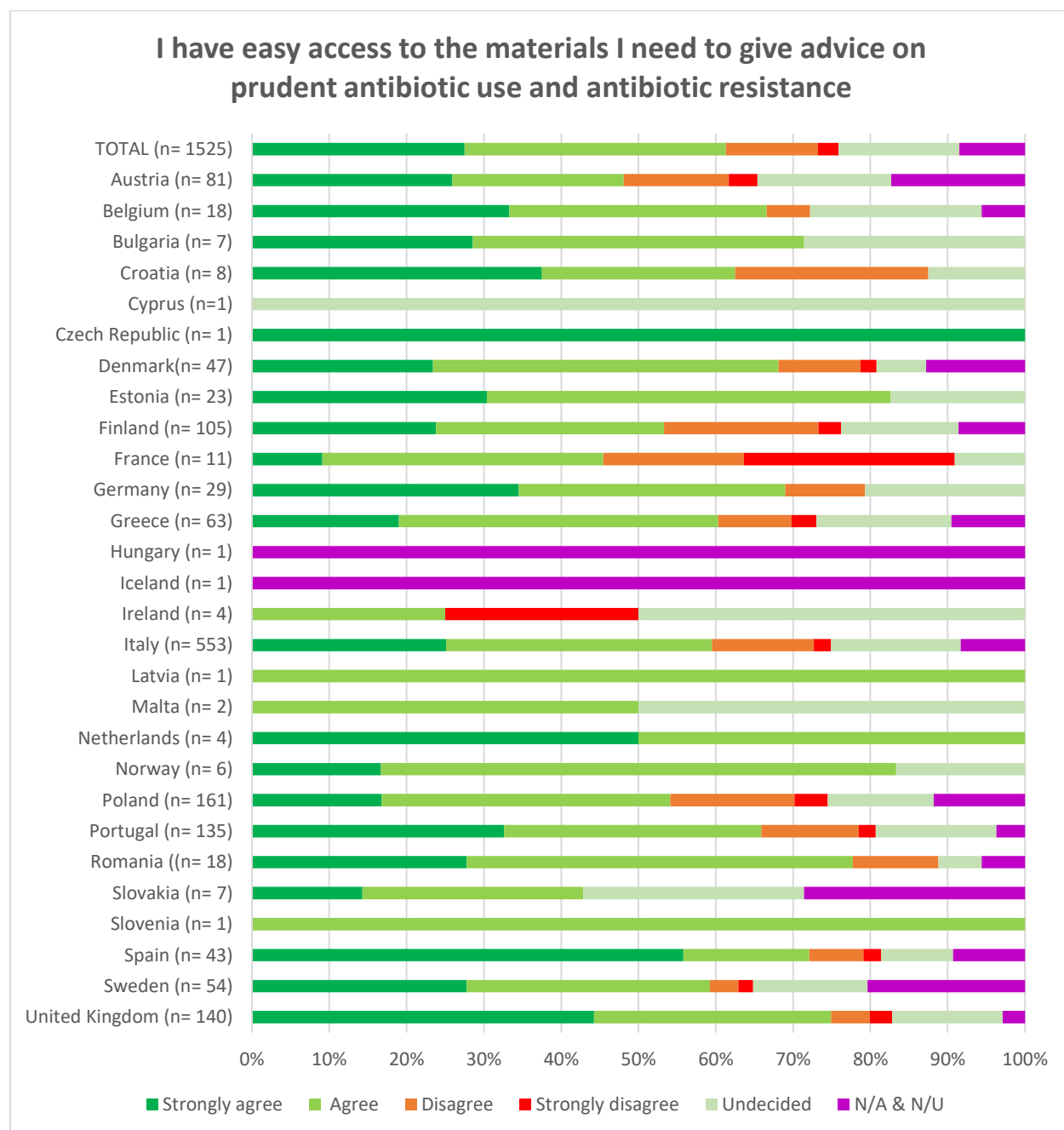
Profession	Setting	Agree or Strongly Agree (%)	Disagree or Strongly Disagree (%)	Undecided (%)	Not applicable (%)	Do not understand (%)
Pharmacist (n=3 078)	Hospital (n=1 152)	76.6	9.1	12.4	1.6	0.3
	Community (n=208)	75.5	10.6	13.5	0.0	0.5
	Other settings (n=1 718)	66.1	14.6	16.6	2.5	0.3
Pharmacy technician (n=227)	Hospital (n=94)	66.0	8.5	12.8	11.7	1.1
	Community (n=37)	75.7	2.7	16.2	5.4	0.0
	Other settings (n=96)	66.7	9.4	16.7	7.3	0.0

All healthcare professionals:

Figure 19. Percentage of respondents with direct patient/public involvement who agreed/disagreed with the statement 'I have easy access to the materials I need to give advice on prudent antibiotic use and antibiotic resistance', by country (n=14 299)



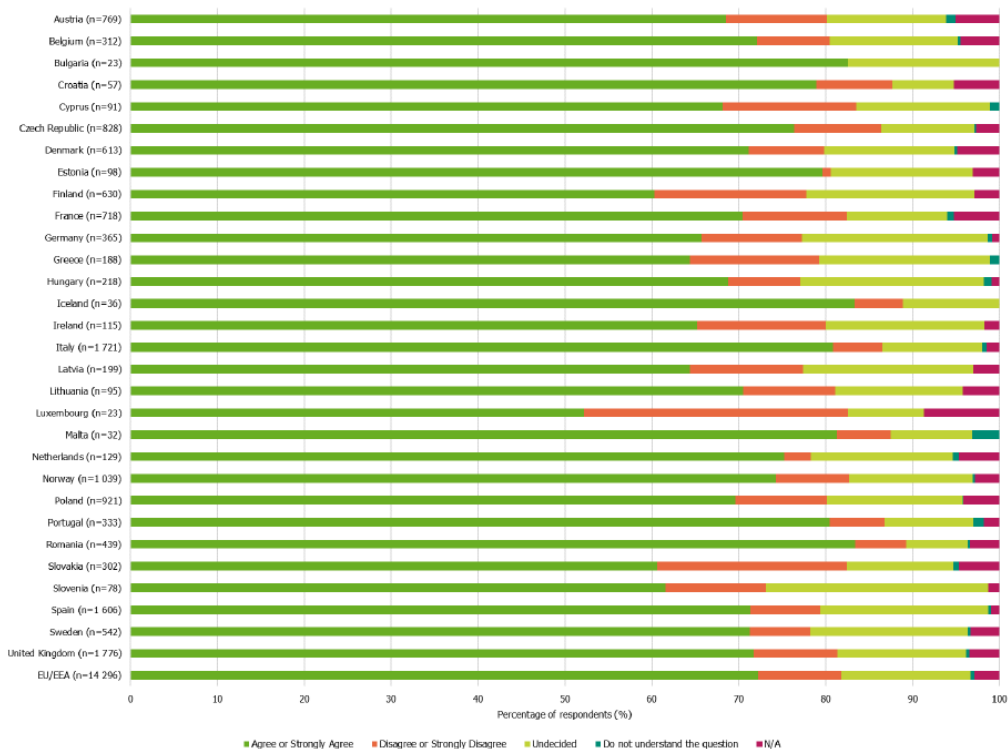
Community pharmacists:



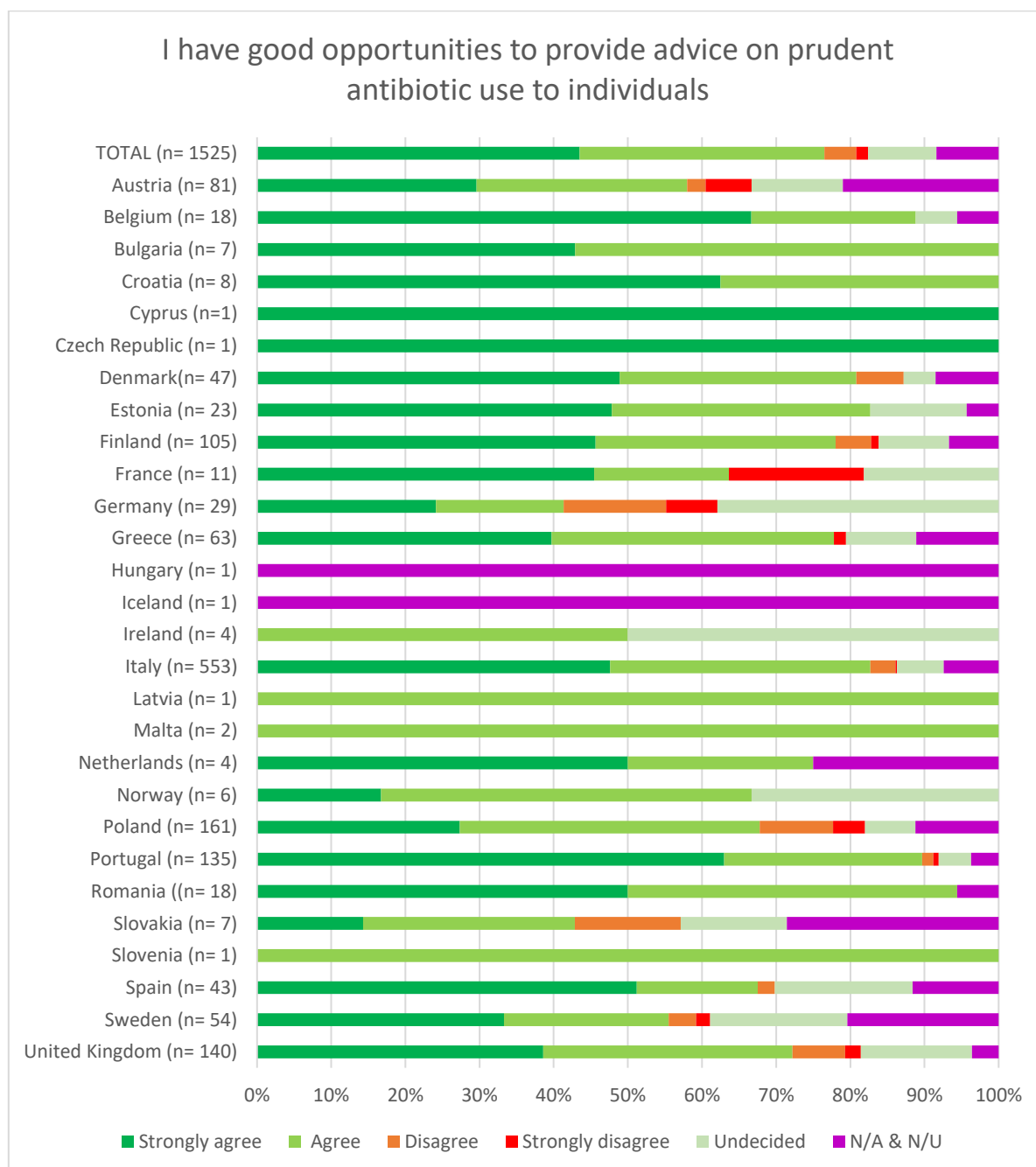
3. I have good opportunities to provide advice on prudent antibiotic use to individuals

All healthcare professionals:

Figure 18. Percentage of respondents with direct patient/public involvement who agreed/disagreed with the statement 'I have good opportunities to provide advice on prudent antibiotic use to individuals', by country (n=14 296)



Community pharmacists:



D) Behaviour related to giving out resources and advice

All healthcare professionals:

Figure 21. The frequency with which respondents who have direct patient/public involvement provided antibiotics or resources related to prudent use of antibiotics (n=14 294)

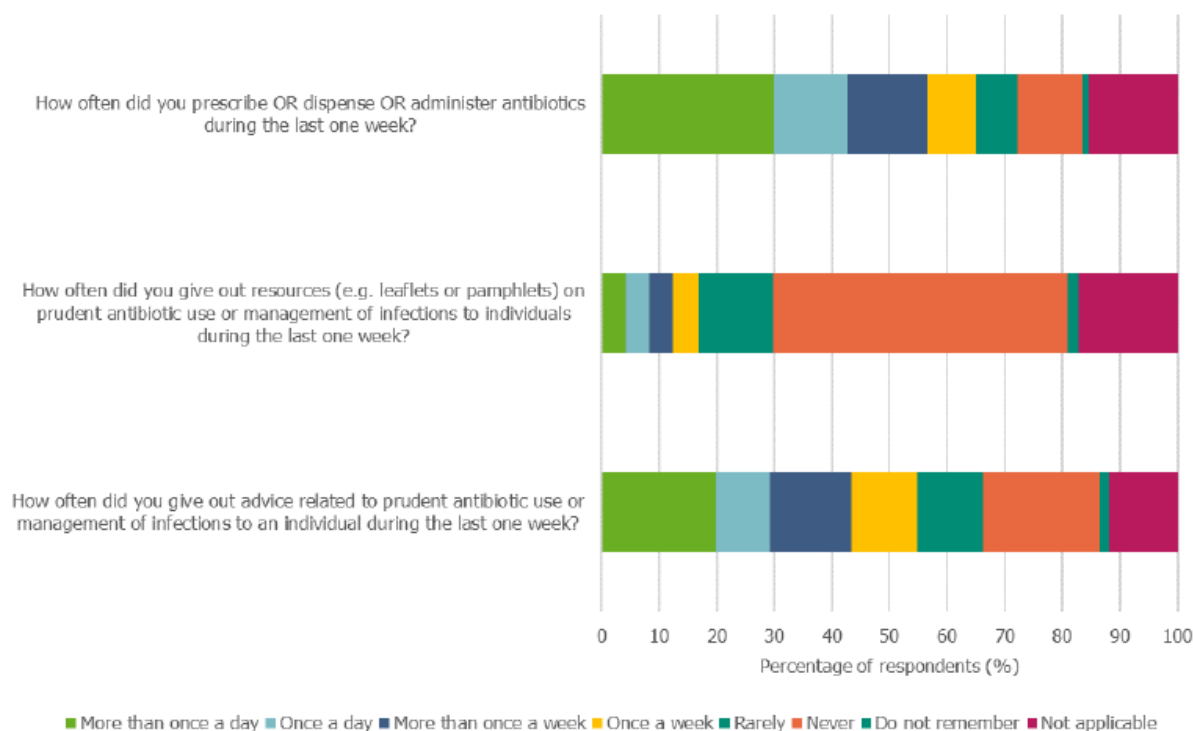


Table 21. Percentage of respondents who prescribed/dispensed/administered antibiotics, and those who gave out resources and/or provided advice related to prudent antibiotic use or management of infections to an individual at least once during the previous week, by profession

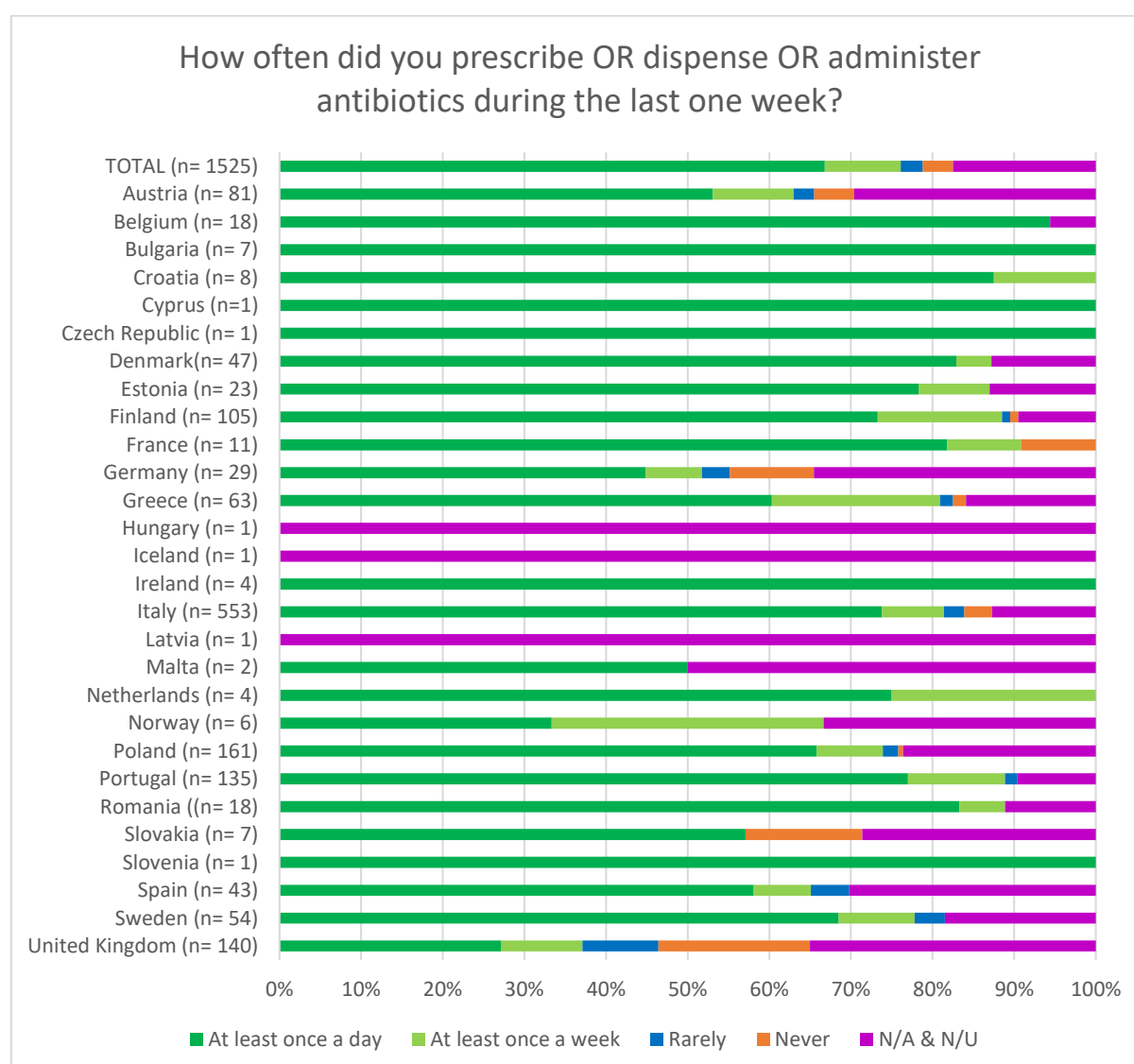
Profession	Number (%) of respondents who prescribed OR dispensed OR administered antibiotics at least once during the previous week	Number (%) of respondents who gave out resources (e.g. leaflets or pamphlets) on prudent antibiotic use or management of infections to an individual at least once during the previous week	Number (%) of respondents who provided advice related to prudent antibiotic use or management of infections to an individual at least once during the previous week
Medical doctor	4 917 (50.4)	1 209 (45.3)	4 249 (50.5)
Pharmacist	2 166 (22.2)	562 (21.1)	1 816 (21.6)

1. How often did you prescribe OR dispense OR administer antibiotics during the last one week?

Table 18. The frequency with which respondents with direct patient/public involvement from each setting prescribe OR dispense OR administer antibiotics during the last one week

Setting	Number of respondents	At least one a day (%)	At least once a week (%)	Rarely (%)	Never (%)	Do not remember (%)	Not applicable (%)
Hospital	6 941	44.5	22.0	6.0	10.3	1.0	16.3
Community	3 216	33.2	28.2	10.0	15.3	1.4	11.9
Pharmacy	1 528	73.2	11.0	2.3	2.6	1.1	9.8

Community pharmacists:

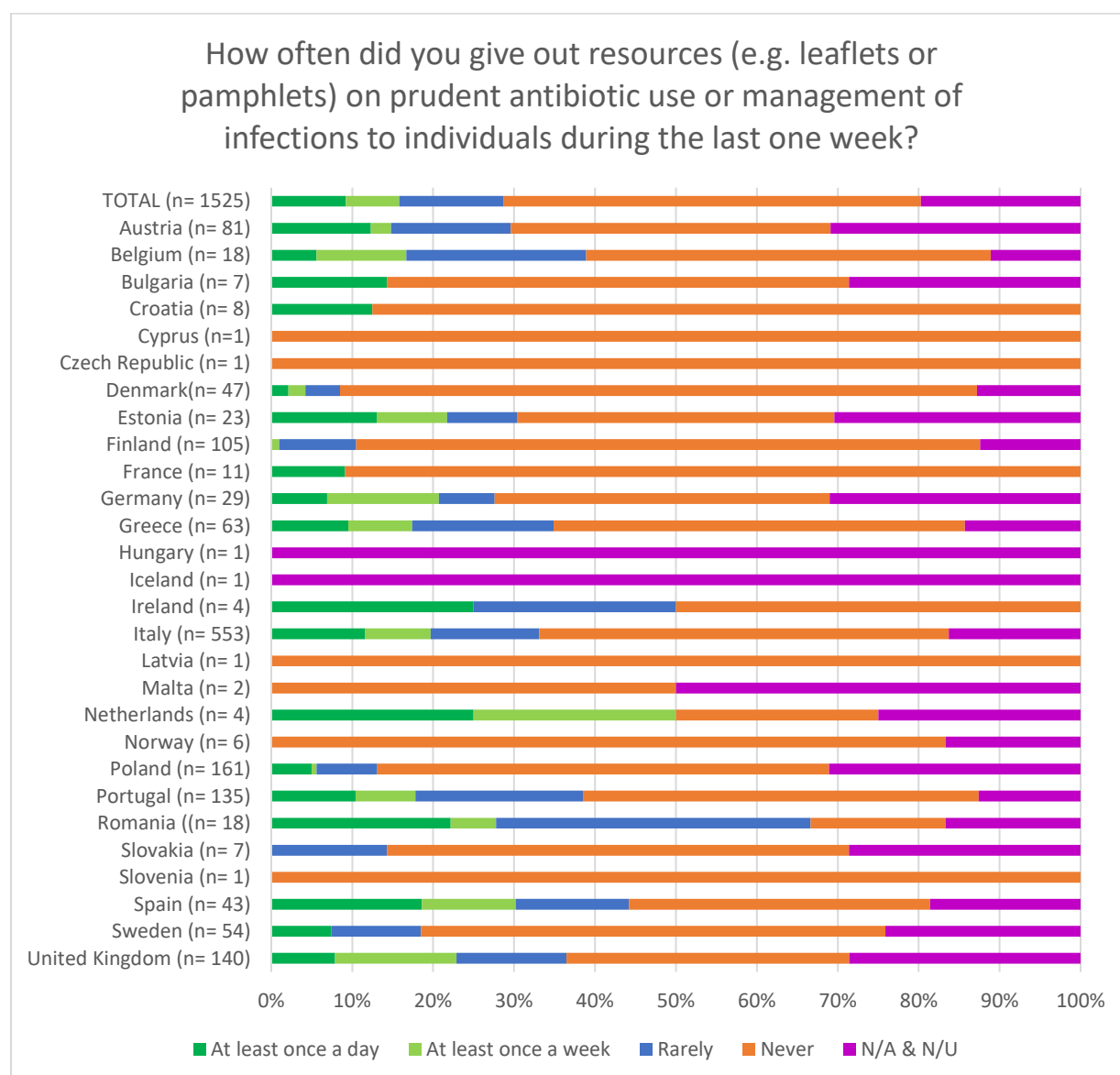


2. How often did you give out resources (e.g. leaflets or pamphlets) on prudent antibiotic use or management of infections to individuals during the last one week?

Table 19. The frequency with which respondents with direct patient/public involvement gave out resources (e.g. leaflets or pamphlets) on prudent antibiotic use or management of infections to individuals during the last one week

	Number of respondents	At least one a day (%)	At least once a week (%)	Rarely (%)	Never (%)	Do not remember (%)	Not applicable (%)
Hospital	6 941	7.1	8.1	12.2	52.2	1.8	18.7
Community	3 216	8.9	8.9	13.8	53.8	2.0	12.7
Pharmacy	1 528	10.1	6.6	14.9	54.2	1.7	12.4

Community pharmacists:

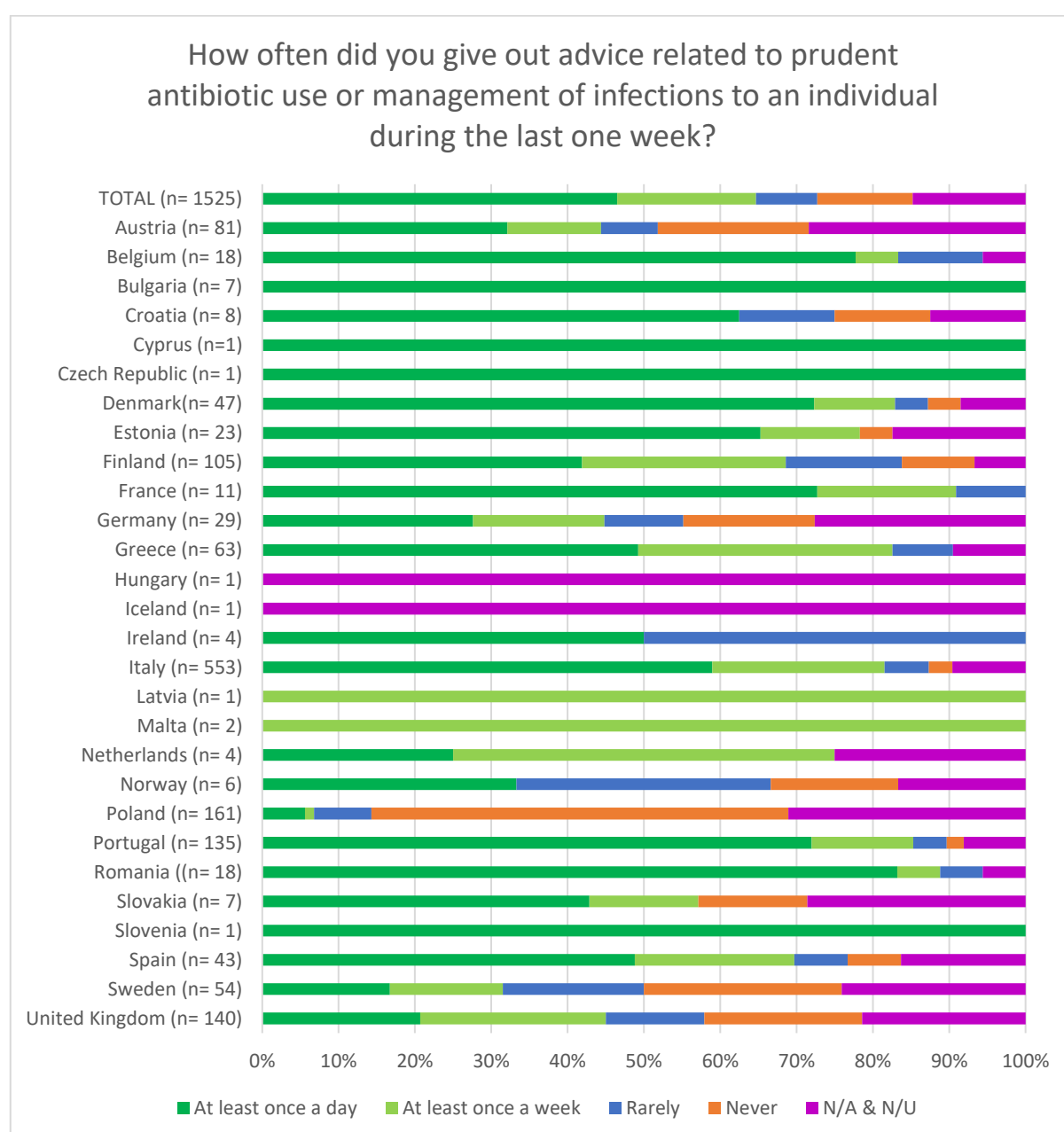


3. How often did you give out advice related to prudent antibiotic use or management of infections to an individual during the last one week?

Table 20. The frequency with which respondents with direct patient/public involvement provided advice related to prudent antibiotic use or management of infections to an individual during the last one week

Setting	Number of respondents	At least one a day (%)	At least once a week (%)	Rarely (%)	Never (%)	Do not remember (%)	Not applicable (%)
Hospital	6 941	21.8	24.7	13.3	25.0	1.5	13.8
Community	3 216	37.2	30.1	9.8	14.5	1.3	7.1
Pharmacy	1 528	49.5	18.9	7.9	14.1	1.6	7.9

Community pharmacists:



E) Resources used by healthcare workers in management of infections

1. In the management of infections, which of these do you use regularly?

All healthcare professionals:

Figure 23. Resources most frequently used in the management of infections by healthcare workers with direct patient/public involvement, by country⁵

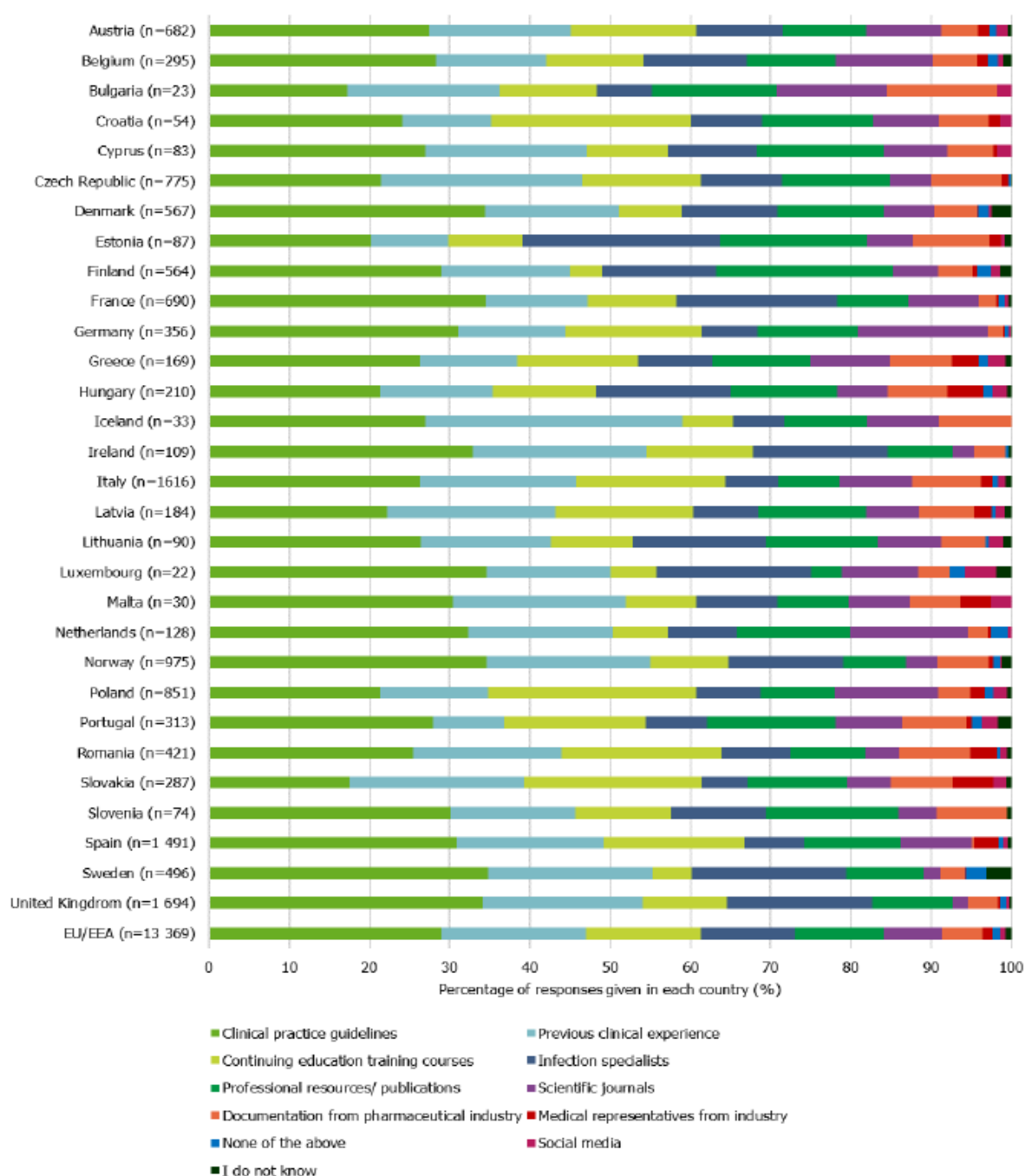
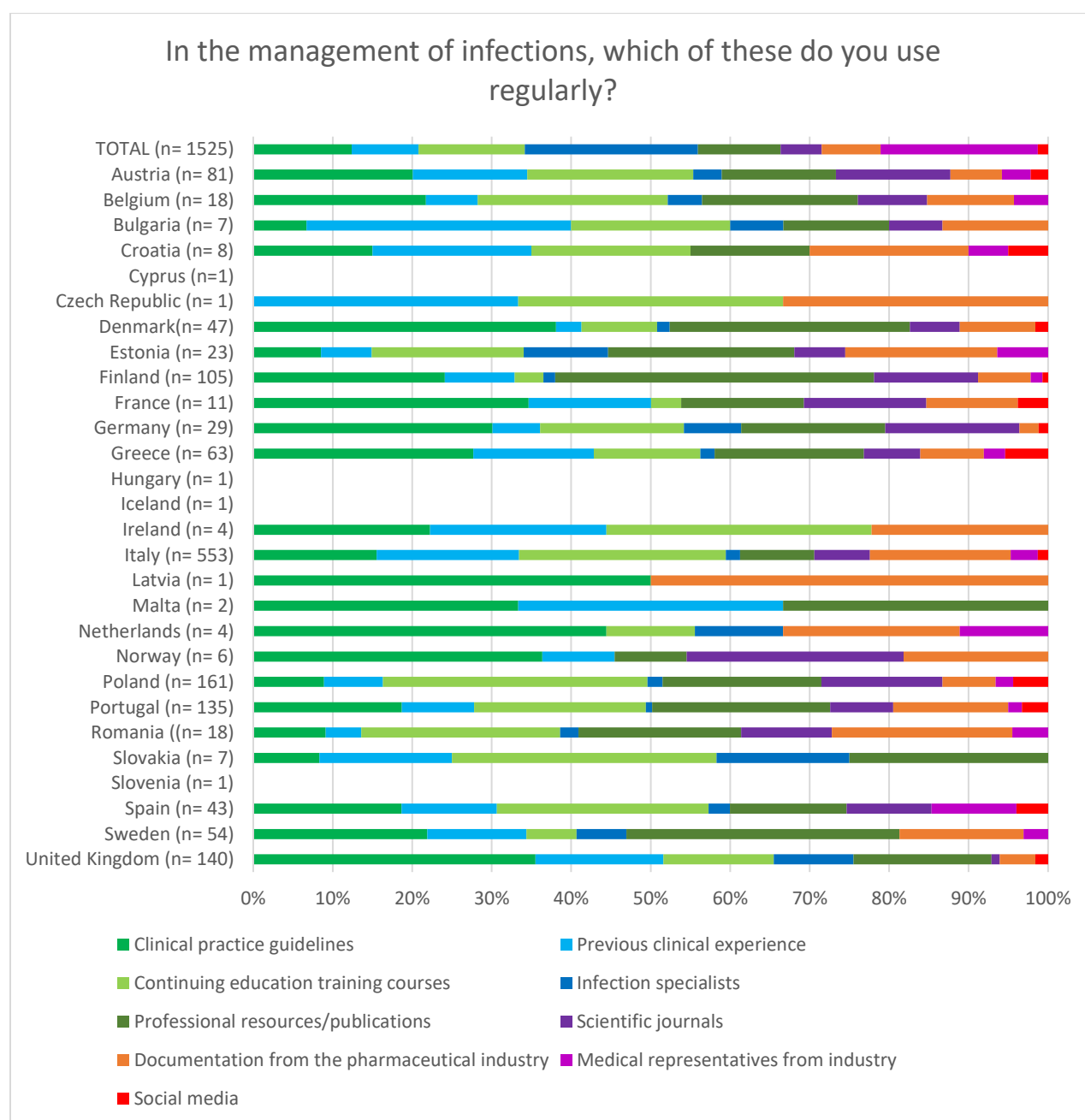


Table 22. Resources most frequently used in the management of infections by all healthcare workers, by setting (multiple responses allowed)

Setting	Number of respondents	Clinical practice guidelines (%)	Previous clinical experience (%)	Continuing education training courses (%)	Infection specialists (%)	Professional resources/publications (%)	Scientific journals (%)	Documentation from the pharmaceutical industry (%)	Do not use any of these (%)	Medical representatives from the industry (%)	Do not know (%)	Social media (%)
Hospital	7 822	71.7	38.7	26.6	42.9	23.3	15.4	11.0	3.4	2.2	3.0	1.8
Community	3 536	72.1	47.7	38.4	14.9	27.7	14.7	7.4	3.5	3.5	2.3	1.7
Pharmacy	1 445	38.3	26.6	44.4	6.6	34.5	19.8	25.5	5.5	6.0	4.7	4.6

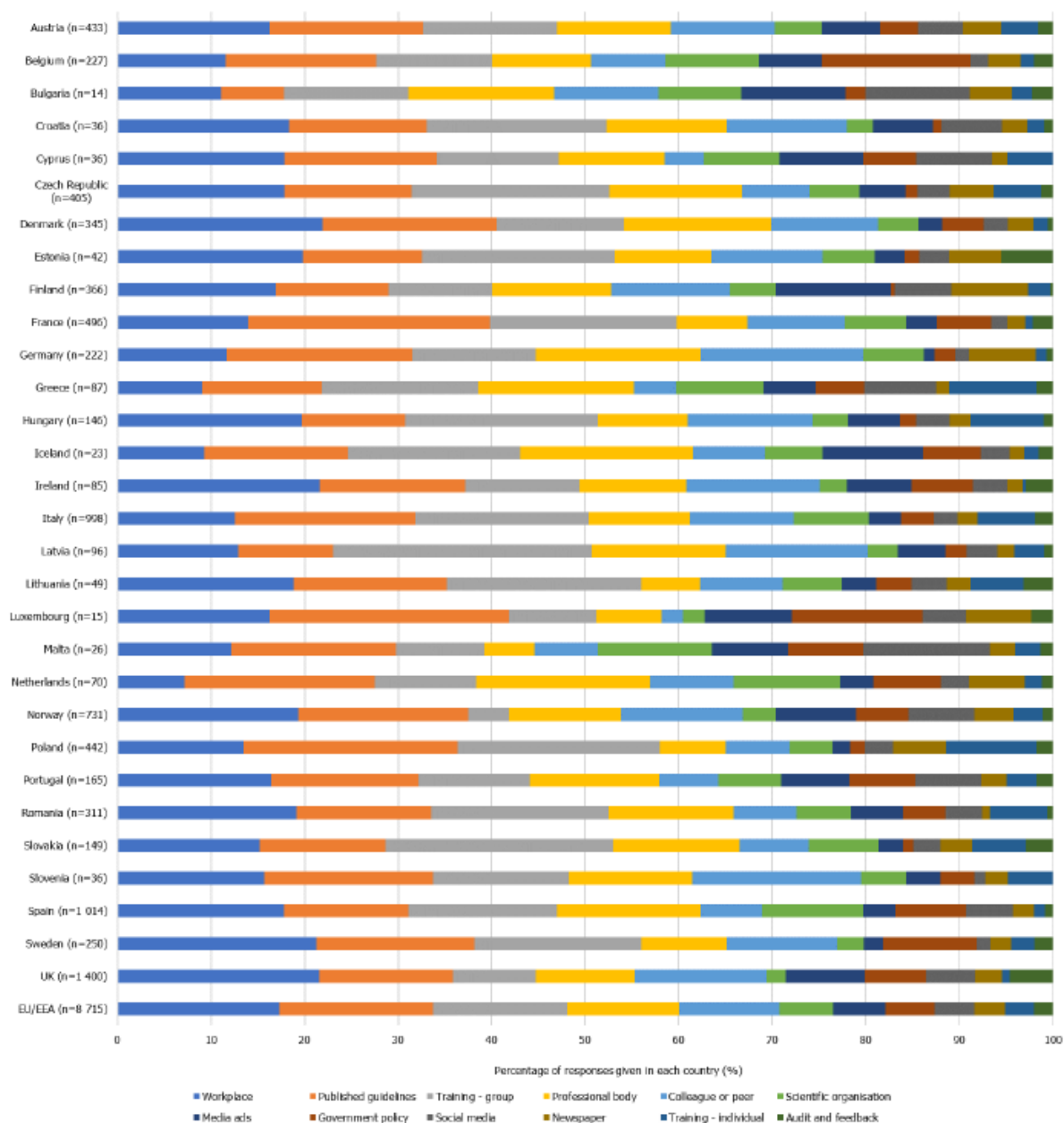
Community pharmacists:



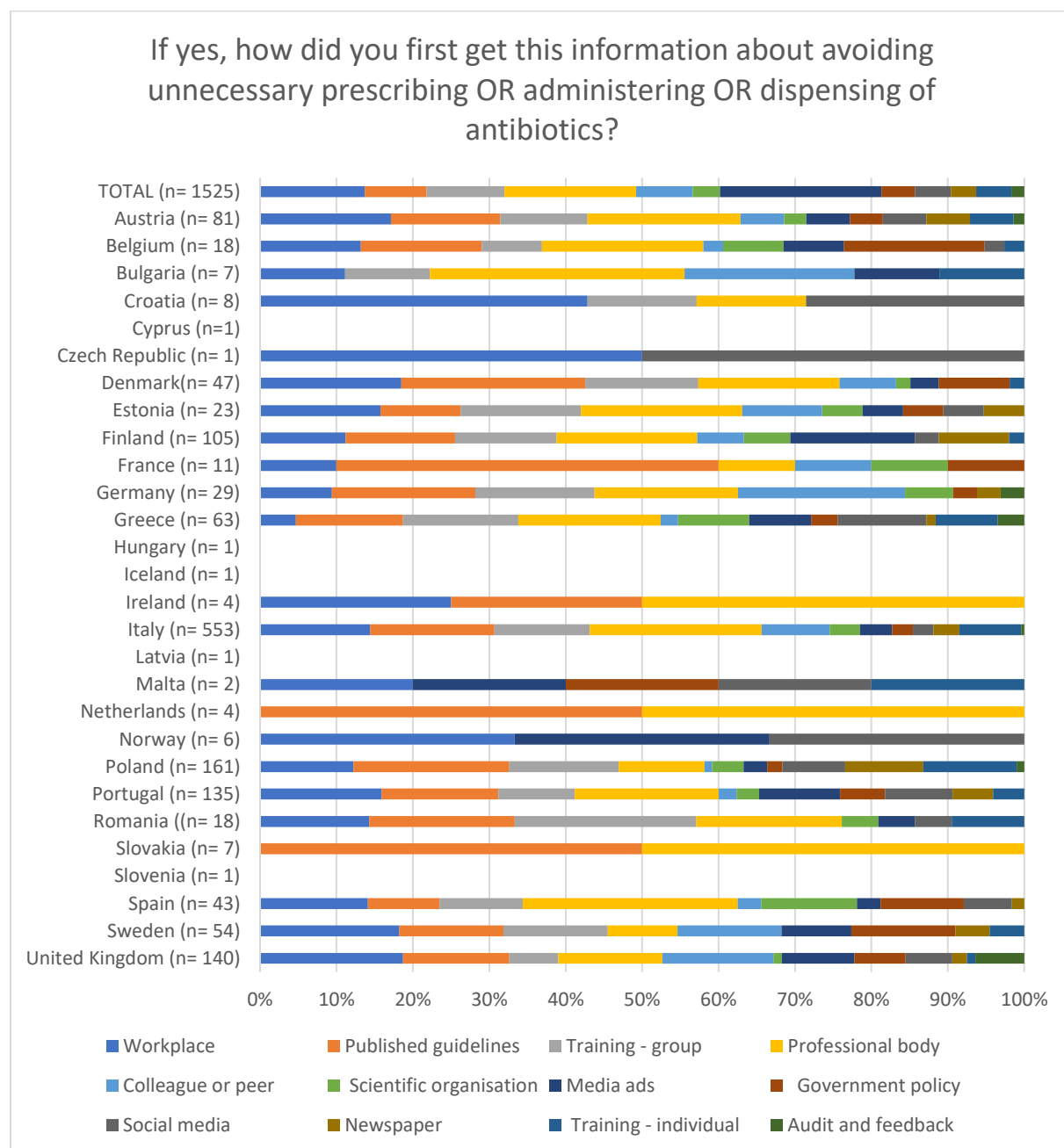
2. If yes, how did you first get this information about avoiding unnecessary prescribing OR administering OR dispensing of antibiotics?

All healthcare professionals:

Figure 24. Sources of information about avoiding unnecessary prescribing/dispensing/administering antibiotics in the last 12 months as cited by healthcare workers, by country⁶.



Community pharmacists:

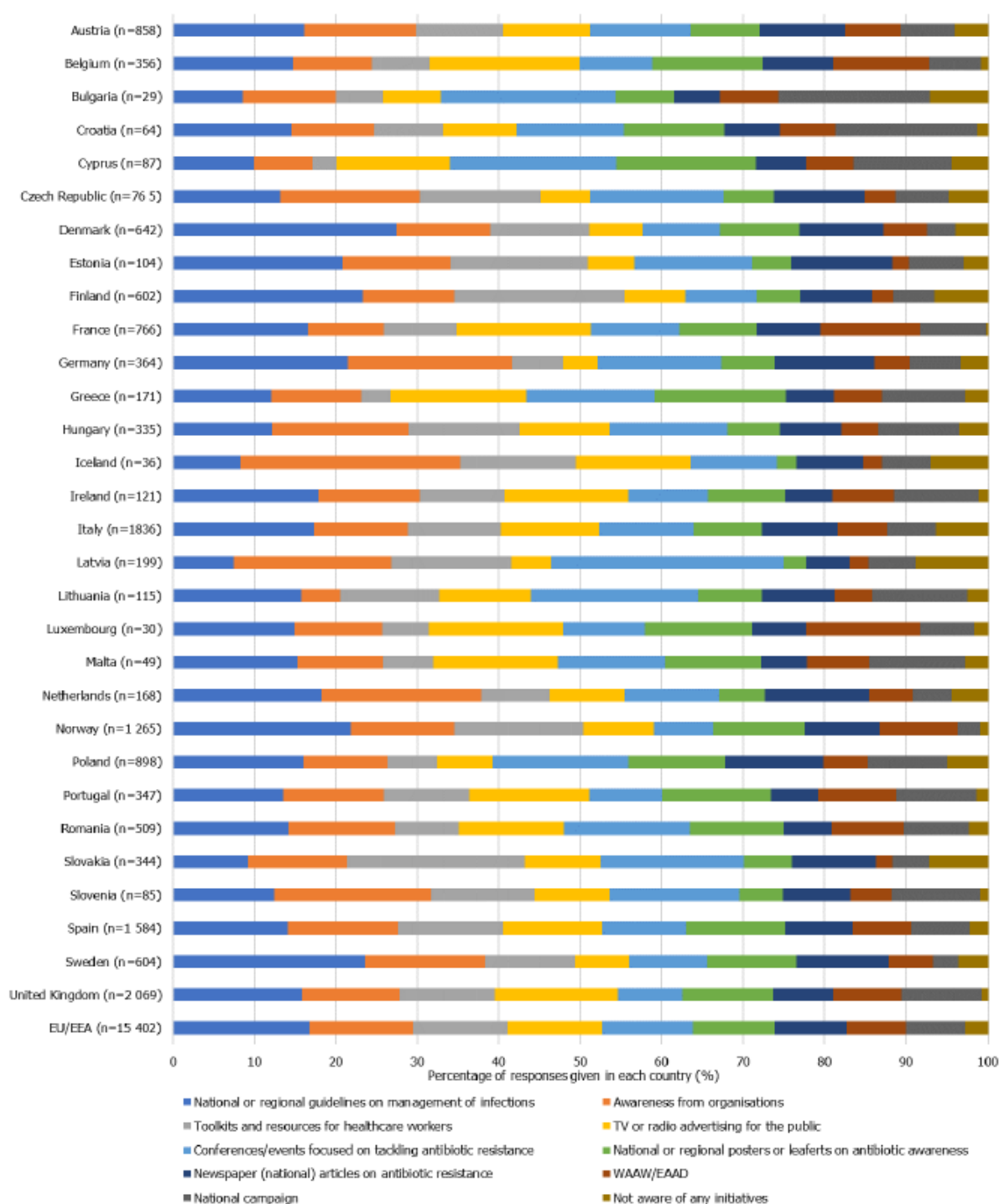


F) Campaign and training

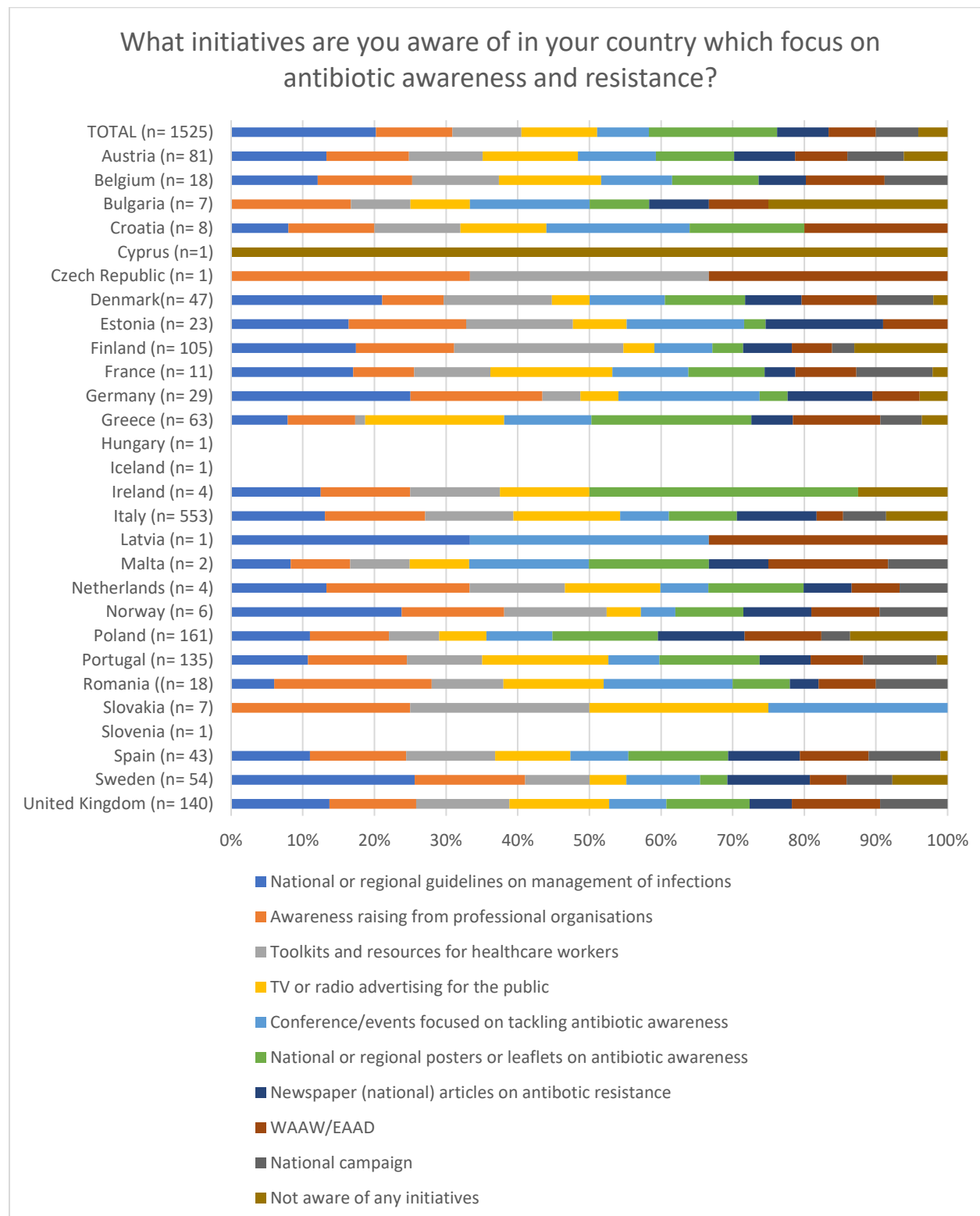
1. What initiatives are you aware of in your country which focus on antibiotic awareness and resistance?

All healthcare professionals:

Figure 27. Initiatives that respondents said they were aware of in their own countries, by country⁸



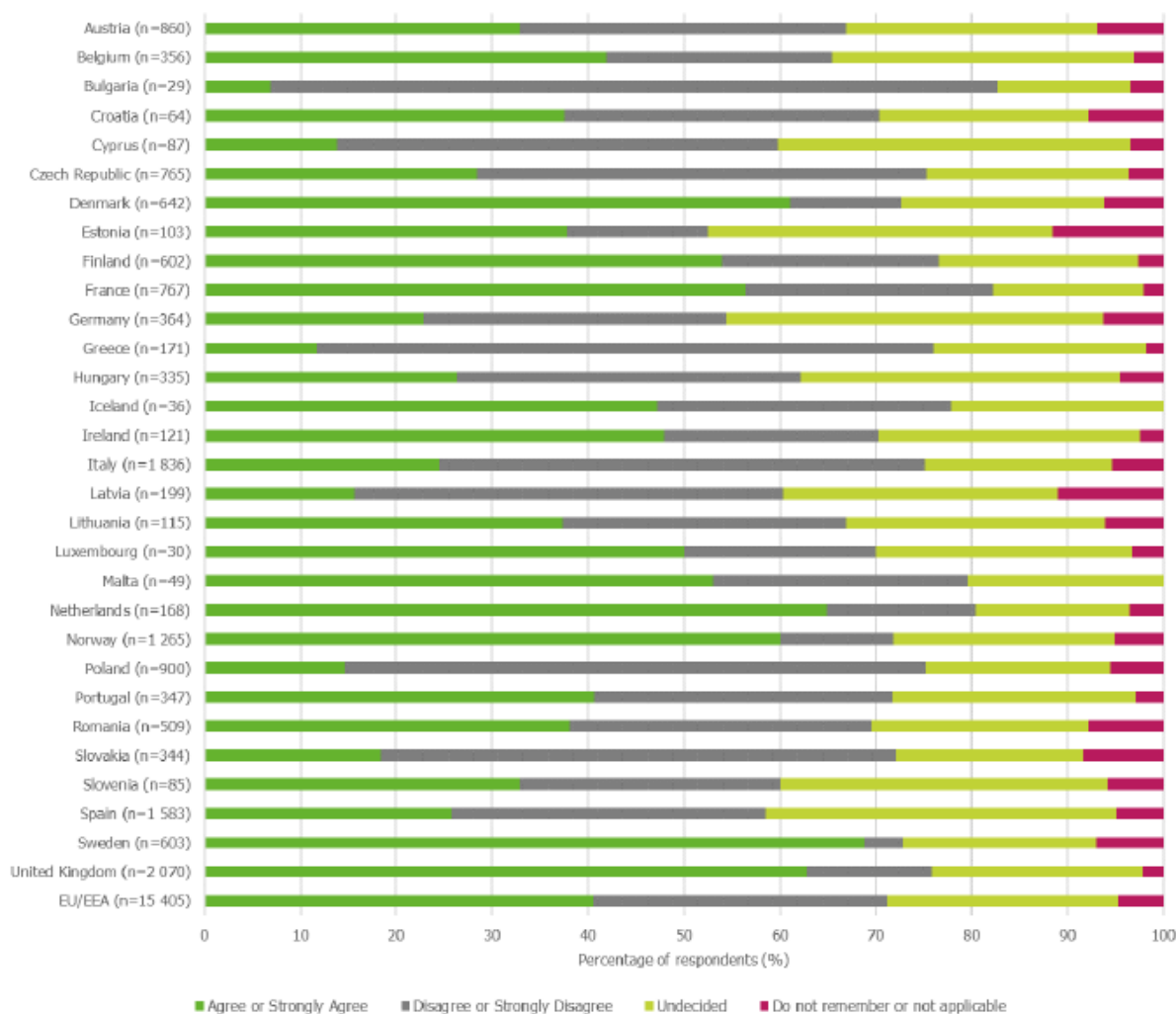
Community pharmacists:



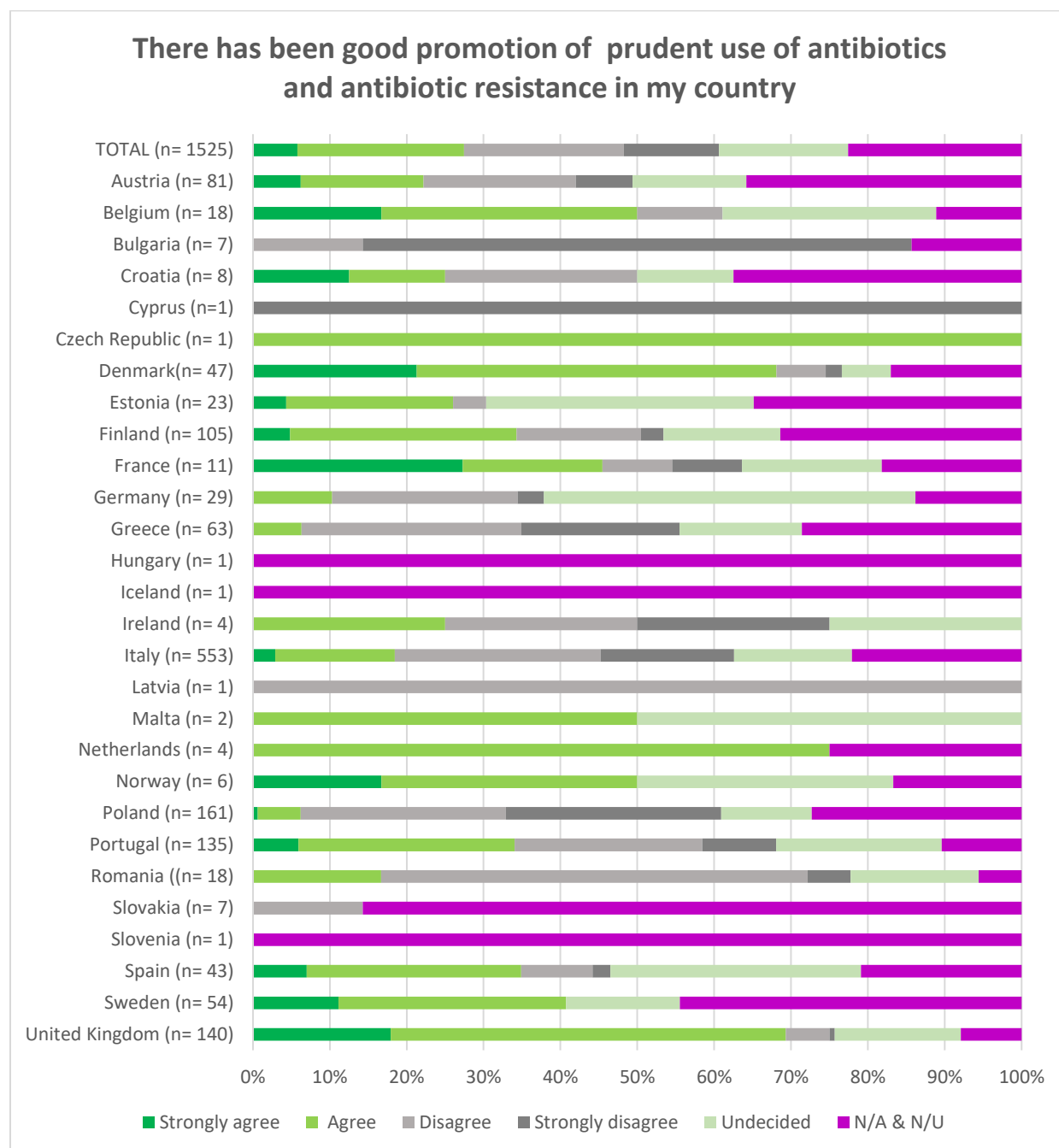
2. There has been good promotion of prudent use of antibiotics and antibiotic resistance in my country

All healthcare professionals:

Figure 28. Percentage of respondents who agreed/disagreed that there had been good promotion of prudent antibiotic use and information about antibiotic resistance in their country, by country



Community pharmacists:



G) Awareness of national action plans, European Antibiotic Awareness Day

All healthcare professionals:

1. Have you heard of EAAD?

Figure 30. Percentage of respondents who were aware/unaware of whether their country had a national action plan on AMR, who had/had not heard of European Antibiotic Awareness Day, and who had/had not heard of World Antibiotic Awareness Week



	European Antibiotic Awareness Day (%) (n=15 518)
Yes	5 028 (32.4)
No	9 047 (58.3)
Unsure	1 443 (9.3)

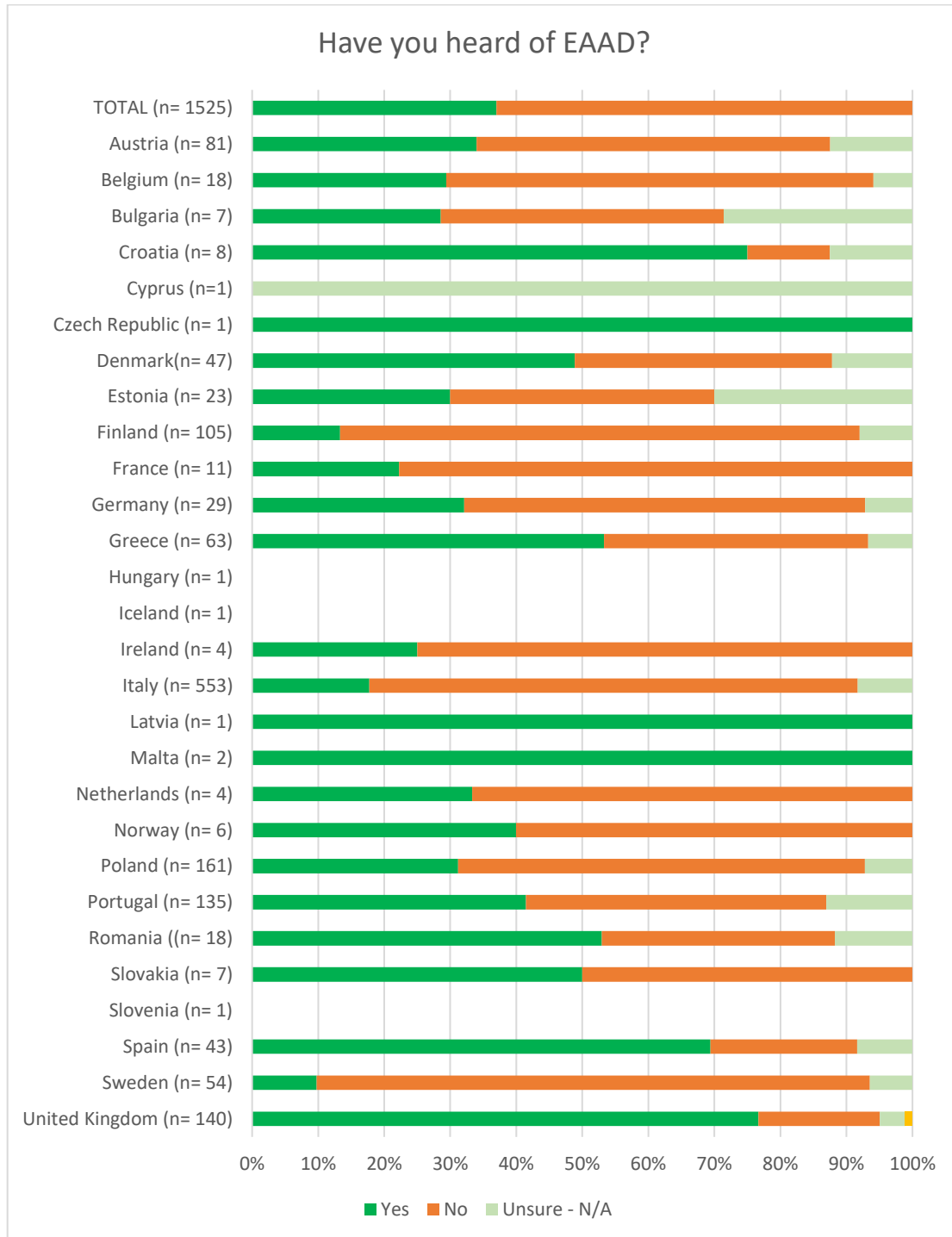
Community pharmacists:

Have you heard of the European Antibiotic Awareness Day (EAAD)?



	European Antibiotic Awareness Day % (n= 1525)
Yes	421 (27.6)
No	717 (47.0)
Unsure – N/A	387 (25.4)

Community pharmacists:



2. On which topics would you like to receive more information?

All healthcare professionals:

Table 27. Topics selected by respondents on which they would like to receive more information (n=14 896)

Topic	Number of respondents (%)
Resistance to antibiotics	8 209 (55.1)
Links between the health of humans, animals and the environment	6 927 (46.5)
How to use antibiotics	6 253 (42.0)
Medical conditions for which antibiotic are used	4 691 (31.5)
Prescription of antibiotics	3 842 (25.8)
None	1 663 (11.2)

Community pharmacists:

