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The limited state of training on the social dimensions of antimicrobial resistance

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Background: Training is needed to increase awareness and understanding of the complex problem of antimicrobial resistance (AMR) among professionals. However, AMR capacity building often does not stretch beyond the biomedical sciences, limiting interdisciplinary collaboration.

Objectives: Considering the relevance of including the social sciences, this scoping review assesses the state of training on the social dimensions of AMR.

Methods: Twenty-eight training courses covering social dimensions of AMR were identified via a survey ($n = 133$), interviews ($n = 6$) and an additional internet search. General characteristics, quality and social science relevance indicators were extracted and analysed for each of these training courses.

Results: Because only 57% of the analysed training courses were fully focused on AMR, AMR was usually superficially covered, focusing on the biomedical basics and just mentioning some social aspects without using social science theories or experts. Only 3 of the 28 training courses covered AMR primarily from a social science perspective, while only 14% of the educators involved had social science expertise. Biomedical dimensions of AMR were covered twice as much as the social science dimensions. In the social science domain, institution and policy elements are most frequently covered, while transformations are the least covered.

Conclusions: There is a clear gap in educational resources on AMR, but moreover for social scientists wanting to engage in AMR, or for non-social scientists wanting to learn about the social dimensions of AMR from an interdisciplinary perspective. This gap needs to be bridged if we want social sciences to become a relevant partner in the struggle against AMR.

Introduction

Social science capacity building regarding antimicrobial resistance (AMR)

The first pillar of the WHO Global Action Plan on Antimicrobial Resistance is to improve awareness and understanding of AMR through effective communication, education and training.[1] The call for training of professionals working on AMR has so far been focused mostly on increasing training opportunities for healthcare workers on the frontline of fighting resistance, and of academic scientists working in clinical health fields.[2–7] For example, in the seminal 2016 report by the UK O'Neill commission, the need for training is only mentioned as far as it relates to health sciences.[8] Similarly, WHO's global competency framework for education and training introduces vital AMR-related competencies relevant for health workers across the spectrum of healthcare delivery.[9] An additional mapping of 94 educational resources by WHO consultants comparably focused only on training programmes for health workers, excluding assessment of training courses for social scientists or on the social dimensions of AMR.[10,11]

It seems that the general tenet of this abovementioned literature is to advocate that training is needed, but the view on capacity building does not seem to stretch easily *beyond* the health sciences, despite the acknowledgement of the complexity of the issue at hand. The WHO global competency framework for education and training indeed acknowledges that AMR is a complex public health and environmental issue that calls for a systems approach and identifies the social dimensions as 'cross-cutting competencies' (e.g. law and ethics). However, while there is a general call for a One Health public health agenda to involve a broader alliance of health experts beyond the clinical setting (e.g. pharmacists, dentists or veterinarians),[7] social scientists are only included as helpful

allies insofar as they have good ideas on how to translate a clinical message to community levels, with a dominant role reserved for the behavioural sciences (see for example Table 1 in Pulcini and Gyssens[6]).

What is left unattended is that the enormity of the AMR problem has an infinite number of complicated social dimensions that enter the fray at multiple levels of analysis. Experts suggested that the social science contribution should range from global trends and drivers to social interactions between patients and doctors, or between vets and farmers. For example, defining the agenda for social science research in 2014, the UK Economic and Social Research Council proposed that 'social science can contribute to the measurement, modelling and understanding of antimicrobial resistance and its geographical and social distribution, and to the development and evaluation of strategies to mitigate it.'[12] As Professor Dame Sally Macintyre, Working Group Chair, stated:

> *'The mechanisms which lead to antimicrobial resistance are biological. However the conditions promoting, or militating against, these biological mechanisms are profoundly social. How our farmers, vets, and regulatory systems manage livestock production for human consumption; how regulatory and fiscal frameworks incentivise or deter antimicrobial development, production and use; how the public and healthcare professionals understand, value and use antimicrobials; the context in which animals and humans interact; the ways in which particular groups of humans are exposed to particular microbial infections; all these are shaped by social, cultural, political and economic forces.'*

While it is clear that professionals do not need to know everything about policies or community engagement, it seems that without more attention to the social dimensions the larger complexity of the problem will likely remain unaddressed, favouring technical fixes, medicalization of the problem and short-term solutions. To avoid this, interdisciplinary research, capacity building and collaboration between social and non-social disciplines using a cross-sectorial One Health or 'eco health' approach are often advocated as the way forward for the integration of the social sciences in the field of AMR.[12,13] This solution is also adopted to other complex (health) problems with a strong link to social dimensions such as climate change,[14,15] HIV[16] and obesity,[17] with varying success.

A scoping review

So, if the social sciences are important to tackle the AMR challenge, what then is the state of education in this domain? This question has so far remained unanswered other than anecdotally, where the general tenor is not optimistic. In response to this question, this scoping review identifies what training courses exist that cover the social dimensions of AMR, and to what level, with the aim of clarifying the existing gaps in order to facilitate the development of (interdisciplinary) training on the topic.

The social dimensions used for this analysis were defined through a participatory expert workshop and included four main domains,[18] ranked from a micro- to a macro-level perspective:

- People and publics: portraying people's experiences with, knowledge of and vulnerability to antimicrobials/AMR in relation to antimicrobial provision and consumption as well as the wider networks, relationships and infrastructures surrounding them, including the media.
- Systems and environment: framing the dynamics and interactions between AMR and the healthcare, pharmaceutical and food system as well as the internal (e.g. stakeholders, regulatory mechanisms, economic incentives) and external (e.g. biophysical and environmental) influences upon these systems.
- Institutions and policy: encompassing the development and implementation of AMR policies from a local (e.g. hospital stewardship) to a national and global level as well as AMR framing.
- Transformations: exploring interdisciplinary, collaborative ways of bringing about change in the field of AMR by making use of social science research methods and interventions.

Figure 1 visualizes this framework and highlights the basic elements of each of these social domains.

Using these dimensions, we mapped training courses that reflected upon the social dimensions of AMR and analysed their content. The mapping was conducted in the context of a new social sciences network for infectious threats and antimicrobial resistance called Sonar-Global.[19]

Methods

Data collection

Information sources

In this scoping review a variety of methods ranging from interviews to a survey and a comprehensive internet search were deployed. A digital survey ($n = 133$) was completed by the experts that joined the Sonar-Global network; their registration on the Sonar-Global platform included questions on the training they had received or provided regarding infectious threats (including AMR), the level of these training courses and their perceived training needs regarding these topics. In addition, six 1 hour informal interviews were held with Sonar-Global partners and related stakeholders using a country orientation, in which training courses from Ukraine, Uganda, Senegal, Bangladesh and Thailand were identified. These two endeavours, that were mostly geared towards the geographical focus areas of Sonar-Global, formed the starting point for a comprehensive internet search. This search was consequently performed from May 2019 till August 2020 in Google and expanded throughout online learning platforms such as FutureLearn, Coursera, OpenLearning, OpenWHO and UNICEF Agora. The search terms used were "social science OR social dimensions AND AMR OR antimicrobial resistance AND training OR education OR MOOC". These three methods were used to identify the training courses that are reviewed within this scoping review (as shown in Appendix S1, available as Supplementary data at *JAC-AMR* Online). Since the Results section displays the outcomes of the analysis of these identified training courses, no direct outcomes of the interviews and survey can be identified.

Eligibility criteria

The scope of the data collection was global and embraced publicly available past and current training infrastructures, training materials and trainers. Private, academic training courses were excluded, due to the limited possibility of retrieving information and materials for them. Eligible training courses that were included in the mapping had to reflect on one or more of the identified social domains of AMR.

The initial mapping exercise identified 35 training courses that appeared to reflect or include any information about the social dimensions of AMR (as part of a database of 228 training courses on the social dimensions of

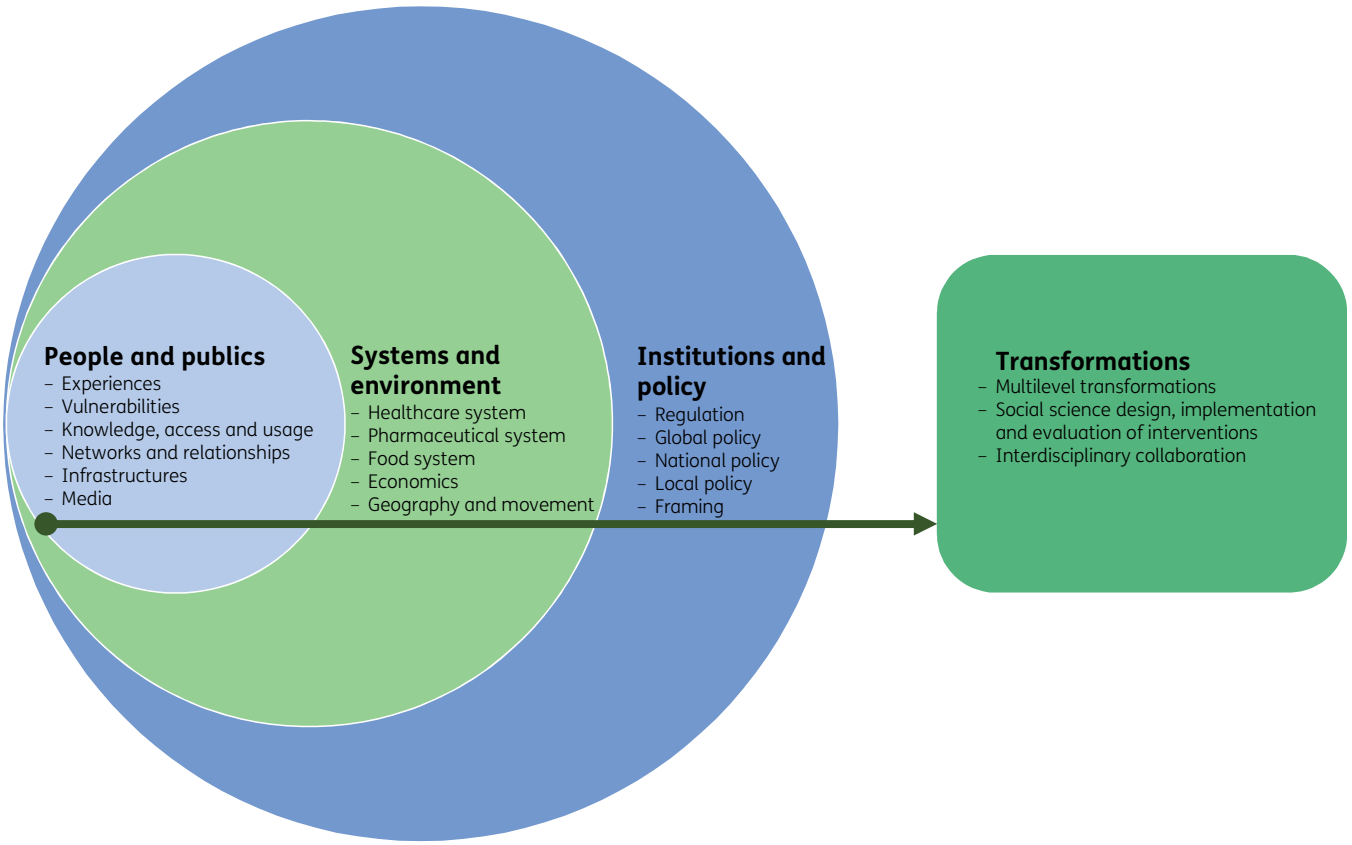

Figure 1. Framework of social dimensions of AMR. Reproduced from Toro-Alzate *et al.*[30] (CC BY 4.0).

infectious threats). Seven of these training courses were however excluded due to insufficient coverage of (the social dimensions of) AMR upon closer inspection (see flow diagram in Figure 2). For 4 of the 28 training courses that remained (training references g, z, A and B), not all indicators could be assessed since the training materials were not fully accessible. The names of and links to the included 28 training courses can be found in Appendix S1.

Data extraction and analysis

Data extraction

For each of the 28 selected training courses, general information was extracted on the name of the training and the hosting institute; the language, duration and frequency of the training; the people that provided and/or developed the training; the intended target audience; and main topics, diseases and disciplines that were covered.

The general information was complemented by extracting data on indicators that reflected upon the quality and (social science) relevance of the training courses, as shown in Appendix S2. These indicators were derived from a composite of evidence from literature on curriculum quality and relevance assessments of both academic and non-academic, postgraduate curricula.[20–24] These indicators were selected since they were thought to be most suitable to assess the general as well as social science-related quality and relevance of the training courses.

For the assessment of the literature included in the training courses, literature was defined as being (peer-reviewed) articles; reports; policy briefs; book chapters; text/information on websites; news articles and opinion pieces; interviews and Q&As; law descriptions; factsheets and patient leaflets; or text provided by the educator on a module topic. Website landing pages, tables, maps, modulators or datasets, infographics, PowerPoint slides and text provided by the educators on module introductions (objectives, overviews and introduction of the educator's team) and glossaries were not taken into account. For each of these literature items, the title and abstract were scanned and a search of the whole literature item with the search term "resistan " was performed to define whether the literature was reflecting social or biomedical elements of AMR. If the literature was found relevant 1 point was provided (for either the biomedical or social science domain) and partially relevant literature items were scored by providing 0.5 points.

In terms of the video materials that were included in the training courses, only self-recorded videos or external videos that were an integral part of the course were included. For estimating the proportion of either the biomedical or social dimensions of AMR reflected upon in the videos, the number of seconds that either one was covered were summed up and divided by the total amount of video seconds of the course.

Data analysis

The extracted data were analysed using Microsoft Excel. Categorial indicators were analysed by providing a number and percentage and the numerical indicators by providing a median and range or percentage. The median was used because none of the numerical indicators had a normal distribution. Normality was assessed with use of histograms.

Data validation

The data extraction and analysis processes were cross-validated by comparing the outputs between at least two researchers at several instances

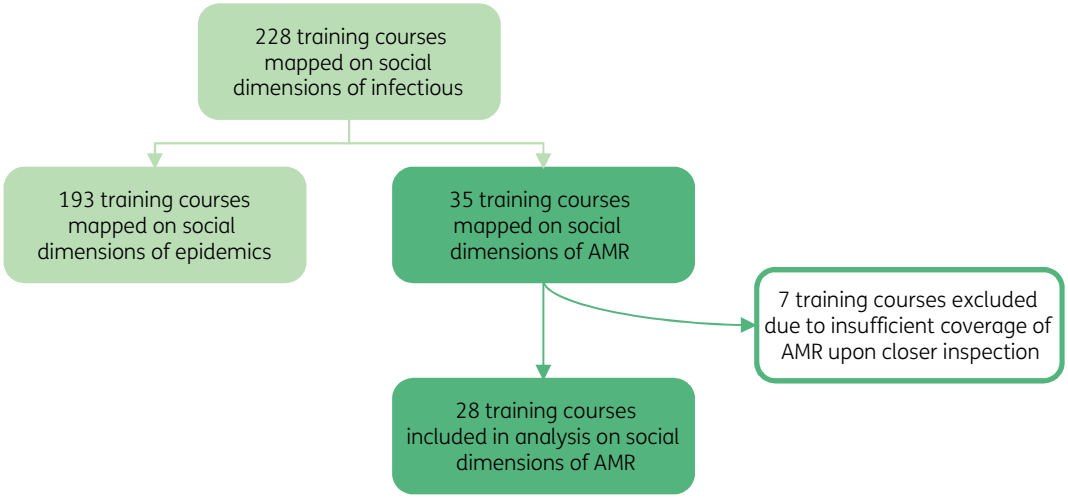

Figure 2. PRISMA flow diagram of included AMR training courses.

over time and then calibrating before the extraction and analysis was further continued by one of the researchers. Researcher K.H. was responsible for mapping the training courses (performing the internet search, interviews and retrieving the survey information), extracting the general information and analysing the (social science) relevance indicators. Researcher V.F.S. performed the extraction and analysis of the quality indicators, as well as the analysis of the general information. The overall oversight and concept were provided by researcher D.H.D.V. All researchers participated in the validation exercise.

Ethical considerations

Recorded verbal informed consent was obtained from all interview participants and the people who joined the survey actively gave permission for their data to be used for operational research. The provider of the information was only linked to the identified training in the database through his or her name. The database was stored within the secured network of the Amsterdam Institute for Global Health and Development (AIGHD). The mapping of the training courses in general and more specifically the collection and storage of data were all subjected to review by the European Committee and the General Data Protection Regulation (GDPR) procedure of Institut Pasteur. The training materials that were analysed were all open access.

Results

General characteristics

An overview of the general characteristics of the 28 included training courses is offered in Table 1.

Most of the analysed training courses (86%) were massive open online courses (MOOCs), openly available on online learning platforms such as Coursera or FutureLearn (training references a–n, p, q, s–y, B). These MOOCs could either be commenced at any time or during specific timeslots throughout the year. The remainder of the training courses were either guided training courses (7%; z, A) or a curriculum guide (7%; o, r), which were less flexible or not fixed in terms of the starting date. The duration of the training courses ranged from several hours for the MOOCs, usually

Table 1. General characteristics of 28 training courses

	N (%)	Training references
Training mode		
online MOOC	24 (86)	a–n, p, q, s–y, B
guided training	2 (7)	z, A
curriculum guide	2 (7)	o, r
Frequency		
flexible	24 (86)	a–n, p, q, s–y, B
once a year	2 (7)	z, A
not applicable (curriculum guide)	2 (7)	o, r
Duration, h, median (range)[a]	9 (4–468)	
Language		
English	24 (86)	a–n, p, r–x, A, B
French	1 (4)	z
multiple languages[b]	3 (11)	o, q, y
Main topic		
AMR	16 (57)	d, e, h, j, n, p–y, A
epidemics	5 (18)	a, b, g, k, z
global health	3 (11)	c, f, l
One Health	2 (7)	m, B
vaccination	1 (4)	i
patient safety	1 (4)	o
Main discipline		
medicine	12 (43)	h–j, p–v, x, y
interdisciplinary[c]	8 (29)	a, c, e, m–o, z, B
(global) public health	5 (18)	f, g, k, l, A
social science	3 (11)	b, d, w

[a]Data from 25 training courses.
[b]The languages that were provided were English, French, Chinese, Czech, Indonesian, Italian, Japanese, Polish, Spanish, German and Russian.
[c]The disciplines involved in the interdisciplinary training courses included: medicine (4), midwifery (3), dentistry (3), nursing (3), pharmacy (3) [human health], public/global health (2), biology (1), veterinary medicine/science (4), epidemiology (2), microbiology (2), environmental science (3) and anthropology (1).

spread out over some weeks, up to 1 year for both guided training courses. English was mostly used as a medium, while one training course was taught in French (z) and three were offered in multiple languages (o, q, y).

In 57% of the training courses, AMR was the main topic that was covered (d, e, h, j, n, p–y, A); in the remaining 43% of the training courses AMR was merely one of the items that was covered under the umbrella of another main topic such as epidemics (a, b, g, k, z), Global Health (c, f, l), One Health (m, B), vaccination (i) or patient safety (o). For 12 of the 28 training courses, AMR was looked at predominantly from a medical perspective (h–j, p–v, x, y), while 5 were highlighted from a (global) public health angle (f, g, k, l, A). Notable is that only 3 out of the 28 training courses (11%) were covering AMR primarily from a social science perspective (b, d, w). With respect to multidisciplinary training courses (a, c, e, m–o, z, B), out of the 8 training courses only 1 included anthropology (c) and 3 included broader environmental sciences (c, z, B), whereas the rest were dominated by predominantly medical perspectives.

Quality

We assessed the pedagogical quality of the training courses in general and social science terms, with the outcomes summarized in Table 2.

Most of the analysed training courses score relatively high on the general quality dimension. For instance, in terms of the availability of course information only 1 training course did not provide a course guide (s) and 1 other had not set any goals or outcomes (b). Also, 82% of the training courses provided the possibility for students to provide feedback upon the course (a–d, f–n, p, q, s–y, B). An evaluation of the curriculum took place for 23 of the training courses (82%; a–q, t–y), either via review by the users (16; a–c, f, g, i, k–n, q, t–v, x, y), accreditation (5; d, h–j, w) or an update by the course developers (4; e, l, o, p). Moreover, the number of didactic methods used in the training courses was quite high, with the exception of group assignments. However, only 14% of the training courses had social science educators involved in the development of the course. While 3 courses scored quite high (75%–100% social science educators; b, f, w), the remaining 23 pull the average down due to either having no social science educators (17; c, g–j, l–n, p–r, t–v, x, y, A) or only a small percentage of 9% to 33% (6; a, d, e, k, o, B).

Table 2. Results of the quality assessment of 28 training courses

	N (%)	Training references
Availability course guide/manual		
yes	25 (89)	a–r, t–y, B
no	1 (4)	s
not assessable	2 (7)	z, A
Availability course goals/outcomes		
yes	26 (93)	a, c–y, A, B
no	1 (4)	b
not assessable	1 (4)	z
Evaluation of curriculum		
yes	23 (82)	a–q, t–y
no	0 (0)	
unknown	5 (18)	r, s, z, A, B
Possibility student feedback		
yes	23 (82)	a–d, f–n, p, q, s–y, B
no	3 (11)	e, o, r
not assessable	2 (7)	z, A
Number of didactic methods used (ranging from 1–6), median (range)[a]	5 (2–5)	
Teaching methods used[a]		
1. Lectures	27 (100)	a–z, B
2. Individual assignments	25 (93)	a–n, p–w, y, z, B
3. Articles	24 (89)	a–m, o–w, y, B
4. Case studies	22 (81)	a–d, h–m, o–t, v–z, B
5. Discussions	18 (67)	b, d, f–k, m, o, q, t–w, y, z, B
6. Group assignments	3 (11)	o, r, z
Percentage of social science educators, %[b]	14	

[a]Data from 27 training courses.
[b]Data from 26 training courses; Social (behavioural) science backgrounds include: law (3), psychology (3), communication (1), sociology (1), international business (1), public affairs (1), international studies (1), social work (1), health economics (1).

Social science relevance

Table 3 shows the relevance of the training courses in terms of AMR and more specifically the social dimensions of AMR.

It can be seen that while even the biomedical dimension of AMR already plays a relatively minor role in most of the training courses (note that 9 out of 24 do not fully focus on AMR; a–c, f, i, k–m, o), social dimensions are even less addressed. When comparing the coverage of biomedical versus social dimensions of AMR, the biomedical coverage is nearly 2 times higher (1.9 times higher in terms of objectives; 2.1 times higher in terms of video coverage and 1.7 times higher in terms of literature).

When specifically analysing the content of the training courses, we see that the biomedical domain was included in all of the 24 assessed training courses (a–f, h–y). In terms of the social science domains, governance is often cited and addressed, yet social science-based interventions in changing systems is not much taught. The elements that are explored within each of the domains can be found in Table 4.

Note that despite the range of social science elements that are described in Table 4 above, the depth of the coverage of these social science topics was quite limited. Only 1 training course that was fully focused on the social and behavioural aspects of AMR was classified as medium/high (d) and 6 training courses mostly covering antimicrobial stewardship were classified as medium (c, e, h, j, q, w). All others (71%) were either classified as having low (a, b, f, i, k–p, r–v, y) or low/medium (x) depth.

General impression

In 12 training courses AMR is not the main topic that is discussed (a–c, f, g, i, k–m, o, z, B). Because of this, AMR is only superficially

Table 3. Results of the (social science) relevance assessment of 24 training courses

	N (%)	Training references
Learning objectives covering biomedical dimensions of AMR, %[a]	42	
Learning objectives covering social dimensions of AMR, %[a]	22	
Video footage covering biomedical dimensions of AMR, %[b]	40	
Video footage covering social dimensions of AMR, %[b]	19	
Literature covering biomedical dimensions of AMR, %[c]	30	
Literature covering social dimensions of AMR, %[c]	18	
Coverage AMR domains		
1. Biomedical	24 (100)	a–f, h–y
2. Social science—People and publics	17 (71)	a, b, d–f, h, j, p–y
3. Social science—Systems and environment	18 (75)	a–f, h, i, k, m, p–t, w–y
4. Social science—Institutions and policy	20 (83)	a–f, h–k, o–u, w–y
5. Social science—Transformations	12 (50)	c–f, h–j, p, q, w–y
Depth of coverage of social science domains		
low	16 (67)	a, b, f, i, k–p, r–v, y
low/medium	1 (4)	x
medium	6 (25)	c, e, h, j, q, w
medium/high	1 (4)	d
high	0 (0)	

[a]Data from 26 training courses.
[b]Data from 23 training courses (1 without videos).
[c]Data from 22 training courses (2 without literature).

touched upon, quite often focusing on the biomedical basics and just mentioning some social aspects without involving social science theories or experts. Most of these training courses are therefore classified as having low depth of relevance, with one exception that was rated medium due to the special in-depth focus on governance issues (c).

Looking at the 16 training courses that are fully focused on AMR (d, e, h, j, n, p–y, A), more than half of them (9) cover AMR from a clinical perspective, with health professionals as a target audience (n, p, r–v, x, y). These training courses deal with basic principles and definitions of antibiotics as well as AMR, clinical presentations, diagnostic methods and treatment and prevention measures including clinical aspects of antibiotic prescribing, stewardship and infection control related to a whole range of common infections. Even though some social aspects are covered within these clinically oriented training courses, they are rated as low or low/medium in depth. The other 6 training courses (1 could not be fully assessed; A) were mostly geared towards antimicrobial stewardship (d, e, h, j, q, w). Because stewardship is a human issue, more social science-oriented theoretical and methodological aspects are presented here (e.g. description of the problem, barriers and enablers and possible communication and behaviour change interventions) as well as operational aspects of stewardship, including principles, implementation and outcomes of the programmes. However, even in these training courses we noted little attention to how to bring these theoretical, methodological and operational insights into practice and often the educators of the course did not have a social science background. Therefore, the social science depth of these training courses was only rated medium or medium/high.

Discussion

This study found that most of the available training courses on AMR were MOOCs that are easily accessible, but that of these training courses only a regrettably small number consider the social dimensions thereof using social science expertise. There were very few training courses identified that were relevant: only 3 training courses covered a social science perspective (b, d, w), of which only 2 fully focused on AMR (d, w). The percentage of course objectives covering social dimensions of AMR compared with all objectives was only 22% and the percentage of social science training educators compared with all educators was 14%. There is a clear gap in educational resources for social scientists wanting to engage in AMR, or for non-social scientists wanting to learn about the social aspects of AMR from an interdisciplinary perspective. If we want social sciences to become a relevant partner in the struggle against AMR, both such initiatives are sorely needed. Social scientists need to be informed about the relevance of their work for an issue that is generally—and erroneously—framed as a problem in the clinical health domain only needing clinical health solutions. Moreover, the absence of integration of social scientists and social science issues in training and education programmes clearly challenges the interdisciplinary collaboration needed to deal with the multisectoral and multilevel problem of AMR.[25–27]

To change this status quo, truly interdisciplinary training courses are needed in which non-social scientists are introduced to the social science dimensions and learn how social scientists can contribute to the AMR field, and vice versa social scientists are educated on the basic microbiological dimensions and non-social scientists' contributions to the field of AMR. These interdisciplinary

Table 4. Elements covered within the biomedical and social science domains of 24 training courses

	Training courses covering domain/element	
Domain and sub-elements	*N*	references
Biomedical	24	a–f, h–y
basic definitions, notions and terminology	6	d, i, l, s, v, y
epidemiology and surveillance	16	c–f, h, j–m, p, s–v, x, y
key drivers	15	a, b, d–f, h, i, l–n, p–r, v, w
transmission mechanisms	8	p–r, t–v, x, y
clinical diagnosis, management and consequences	8	h, l, n–p, r, x, y
history[a]	7	e, h, p–s, x
complexity[a]	2	x, y
One Health[a]	6	c, h, k, m, x, y
blame culture[a]	1	y
Social science—People and publics	17	a, b, d–f, h, j, p–y
experiences	7	a, d, e, j, r, t, y
vulnerability	2	e, x
knowledge, access and usage	17	a, b, d–f, h, j, p–y
knowledge—health literacy, patient counselling/communication	5	d, h, j, p, r
access—self-medication, over-the-counter sales, counterfeit drugs, access versus excess	7	e, f, h, j, p, x, y
usage—animal/agricultural/human use, prescription, social lives of medicine	17	a, b, d–f, h, j, p–y
social networks and relationships—including actors and stakeholders	2	b, d
infrastructures	1	d
media	3	e, j, y
Social science—Systems and environment	18	a–f, h, i, k, m, p–t, w–y
hospital system	7	d–f, h, k, q, w
pharmaceutical system	12	a, b, e, f, h, i, k, q–s, x, y
food/agriculture system	3	e, f, k
economics—impact, incentives	14	a, c, e, f, h, i, k, p–t, x, y
geography and movement	10	b–e, h, k, m, q, w, x
global inequality	7	c–e, h, k, q, w
global transmission—tourism, travel	3	b, e, x
environment	2	e, m
Social science—Institutions and policy	20	a–f, h–k, o–u, w–y
governance	3	c, d, f
regulations	3	k, s, y
action plans—global, national	7	c–e, o, p, x, y
stewardship	14	a, b, d, h–j, q–u, w–y
guidelines and policies	12	a, b, d–f, h, k, q, s–u, y
policy actors and networks	4	c, h, x, y
stakeholder engagement, motivation and commitment	4	d, q, u, y
political framing—agenda setting, political goodwill/commitment	3	k, x, y
Social science—Transformations	12	c–f, h–j, p, q, w–y
social science interventions	12	c–f, h–j, p, q, w–y
education/awareness	8	c, e, f, h, p, q, x, y
behavioural change	9	d, e, h–j, q, w–y
quality improvement	3	h, q, w
social science research methods	2	d, w
implementation science	2	d, w
realist reviews	1	d
ethnography	1	d
sociograms	1	d
interdisciplinary collaboration	4	c, d, x, y

[a]These topics are social science related.

training courses, however, need to go beyond the theoretical basics, by collaboratively putting these biomedical and social dimensions into practice.

In 1995, a taskforce on AMR by the American Society for Microbiology (ASM) acknowledged that educational objectives in this area could only be accomplished via joint efforts of academia, government, pharmaceutical industry and healthcare societies.[28] As a commentator wrote: 'This means a radical departure from normal operations for all concerned groups' (p. 156).[2] What the results of this scoping review suggest is that, based on the state of social science integration in AMR capacity building, this radical departure has barely taken a few steps ahead. This limited progress could be explained by hesitance from the social sciences to get involved in the field of AMR,[13,29] in part driven by a lacking supportive ecosystem (e.g. limited funding, institutional structures, networks, capacity building, awareness), which might have hindered the pushing of this agenda. What we need is not only more available training courses but also a constructive rethink of how the social dimensions of AMR run through the entire AMR pipeline, from laboratory practices to policy-making, and what contribution social sciences can and should be making in these areas. To even begin to ponder this, the (interdisciplinary) training of social scientists on AMR, and of non-social scientists on the social dimensions of AMR, is a crucial first step that has had very low priority so far.

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Transparency declarations

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Supplementary data

Appendices S1 and S2 are available as Supplementary data at *JAC-AMR* Online.

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