OPEN LETTER

From universal frames to collective experimentation?

Pursuing serious conversations about antimicrobial resistance [version 1; peer review: 2 approved]

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Abstract
In the time of coronavirus disease 2019 (COVID-19) there are numerous attempts to compare across national boundaries and rank governments for their action against the virus. In this context the 'universal' ambition of the Wellcome Trust report on communicating antimicrobial resistance (AMR) is somewhat refreshing, and recalls some of the older ambition of the global health field. Though the report now feels some time ago – it was published in November 2019 - the pandemic does not mean AMR has gone away. Indeed, it may be worsened in the context of rescue prescribing, both for secondary infections following COVID-19 and other health conditions where antibiotics may stand in for scarce or compromised care. In this open letter we wish to respond to the Trust report – locating it in the field of social science work on AMR – and proposing some directions for further discussion. In particular, writing against the backdrop of the viral pandemic, we explore how both COVID-19 and AMR raise questions about our attachment to modern medicine, about the motivating value appeals to vulnerability and health inequality. We therefore call for the report and others to be the start of the further long-distance conversations and experimentation across different fields.

Keywords
antibiotic, antimicrobial resistance, communication, public, vulnerability

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'These days, English travels globally. But for all that, it is not a universal language. Facing this may yet increase the chance that we/they come to engage in serious long-distance conversations.'

(Mol, 2014 p108)

'As soon as we let go of the universal as a self-fulfilling abstract truth, we must become embroiled in specific situations. And thus, it is necessary to begin again, and again, in the middle of things'

(Tsing, 2011 p1-2)

Introduction
Many will know that anthropology as a discipline is cautious about claims to ‘abstract truth’ and passionate about the connection with the local and particular as a key to understanding. In the work of Science and Technology Studies this commitment is not meant to deny the value of science, but to celebrate and interrogate the specific work made to wrest general messages from the world. As Mol (2014) acknowledges, the global reach of the English language helps this, but she warns we should be cautious about assuming that it captures everything. In view of this we see the recent Wellcome Trust (2019) report on finding universal frames for communicating antimicrobial resistance as both interesting and problematic. In the report AMR communication is rendered as a scientific problem. The authors elaborate on their own data collection, in several countries and languages, from which they formulated a small set of messages for communicating AMR to the ‘general public’ across these sites. Of course, social scientists are practised at answering such claims by insisting with Tsing (2011) that ‘specific situations’ matter. Rather than just reprise that position however, we suggest the reading the report in the light of recent international media analysis from 2017 and 2018, and concentrated on publications in English, German and Japanese. This was supplemented by interviews with just over 30 experts. Both were used to generate possible ways of framing antimicrobial resistance that could then be ‘tested’ in each country through a social survey (of just over 2,000 people); and focus groups with representatives of ‘the general public’ (2 groups, with up to 7 people in each). There is a risk at least that the research design used the broader surveys and focus groups to test communicative messages derived from a more geographically narrow analysis, and therefore that participants had limited opportunities to explore their own understandings of infectious diseases or antibiotic treatment and resistance, especially those expressed in languages other than English, German or Japanese. As Mol (2014) reminds us, some words translate and others do not. We also agree with other critical responses that the emphasis on simple frames may have reduced focus on more complex structural issues (Glover et al., 2019) and cultural specificities (Ledingham et al., 2019). However our contribution here is to stay fairly close to the Trust’s own recommendations, reading them in the light of recent international experience (Butcher et al., 2020) and identifying issues for what we hope can be a reinvigorated discussion on AMR communication in the wake of COVID-19.

The work of the report
The Wellcome Trust report represents a significant effort to engage with the topic of antimicrobial resistance. It proposes five frames for communicating the problem to the general public calling communicators to: frame drug-resistant infections as undermining ‘modern medicine’; explain the fundamentals succinctly; emphasise that this is a universal issue, affecting everyone; focus on the here and now; and encourage immediate action. Across the report diversity is repeatedly positioned as potentially problematic; for example, through claims that existing messages are ‘disjointed’ and that the existence of ‘multiple frames’ or ‘multiple terms’ is confusing for communicating AMR (Wellcome Trust, 2019 p8).

Recognising the complexity of the issue, the report suggests that it is important to gather data from across national borders. Original research was carried out in the UK, Germany, USA, Japan, India, Thailand, and Kenya. This impressive scope to the fieldwork meant including countries in the Global North and South, hubs of antimicrobial resistance, major contributors to antibiotic consumption and countries where consumption was both increasing and decreasing. Yet there were limits to this diversity. Three of the seven countries (US, India and Kenya) are former British colonies and still make significant use of the English language; concepts and beliefs associated with other European traditions, including French, German and Swedish microbiology (e.g Gradmann, 2009), and of course similar variation across the continents of Asia and Africa might be missed (Lambert et al., 2019; Pearson & Chandler, 2019). Strangely for a report which located itself lightly at least in political science, diversity in terms of political systems, including the role of the media and experts, was absent or at least not discussed.

The focus on modern medicine
The authors of the Wellcome Trust report suggest presenting antimicrobial resistance as ‘a risk to modern medicine’ – focussing on ‘human health’ as the frame most likely to engage and motivate the general public. This involved setting aside more ecological themes that were shown in the research to have resonance in some countries. For example, much of the media reporting in Germany was found to be linked to news of resistant bacteria in German water sources (Wellcome Trust, 2019 Appendix B). When focus group respondents in India and Thailand put air pollution and access to clean water ahead of
antimicrobial resistance, these were painted as competing rather than potentially intersecting issues, although, this frame would have made more space for discussion of resistant bacteria as a form of pollution resulting from industrial drug and food manufacture (Larsson, 2014). As many global bodies are well aware, antibiotic use is central to food production in many areas of the world and public action here might need to be through political pressure in relation to intensive agriculture (Hinchliffe et al., 2018). Along with other social scientists we believe more could be done to share with publics One Health themes and more ecological accounts of AMR, noting the potential mobilising force of environmental issues, especially for younger people. We note that in the social sciences powerful accounts of AMR explore it as a consequence of, and threat to, longer-term entanglements of humans, animals, environments and microbes (Kirchhelle, 2018; Lee & Motzkau, 2012).

That said, given the report’s emphasis on human health it could also have been beneficial if it acknowledged the different resonances of the concept of ‘modern medicine’. This concept may be threatened by people’s doubts about medical interventions and expertise, notably those expressed in vaccination controversies, which have both international and distinct national versions (Yahya, 2007). As emphasised in the work by Davis et al. (2018) a key factor in communication about antimicrobial resistance is trust in biomedical knowledge systems. The risk of losing trust is hinted at in the suggestion in the report that ‘the sensationalist tone of the more apocalyptic messaging was a cause for some scepticism’ (Wellcome Trust, 2019 p15). Though this echoes older social science research like Nerlich & James (2009) or Brown & Crawford (2009), there is no sustained discussion of ways to maintain and increase trust in expert messages around the issue. While the report helpfully moves away from the idea of amplifying lay misunderstanding that has had some support in the UK at least (Will, 2020), we suggest that lay perspectives are diverse and we cannot simply assume trust in ‘modern medicine’. Reflecting on this critique within the current context of COVID-19, we wonder if this trust can bear the weight the report gives it or might in fact further eroded as some of the limits of modern medicine have become clear. Though this may of course change, to date (despite heroic efforts) medical staff have had relatively few strategies to save people suffering the most severe cases of COVID-19 (Baden & Rubin, 2020; Vijayvargiya et al., 2020). In the Global North as well as in the South reliance on ‘modern medicine’ and its technological solutions has been moderated and re-focused on low-tech hygiene measures, like handwashing and physical distancing.

**Attending to inequality and vulnerability**

A second area where there is more scope for discussion is vulnerability and inequality. The research for the report did test messages about the greater threat of antimicrobial resistance to ‘vulnerable’ groups, however the authors concluded that the word was confusing for many participants. This was given as a reason to argue that antimicrobial resistance should ideally be represented as affecting everyone rather than falling disproportionately on marginal groups. We believe this could be revisited. For one thing it is possible that participants in the research were particularly unlikely to recognise themselves in the notion of the ‘vulnerable group’, not least because they tended to have much higher levels of education than the population average (e.g. more that 60% of participants from India, Thailand and Kenya had a higher degree in contrast to the overall national population) (Wellcome Trust, 2019 Appendix C p35 and p58). Different sets of participants might well have responded more positively to these messages, which are important in global policy and can motivate the public to act. In the current pandemic, pleas to observe physical distancing and lockdowns across the globe have been framed in terms of shielding the vulnerable, with some success: almost everyone knows someone with underlying conditions or fragile health (see debates by philosophers and ethicists about COVID-19 measures and their consequences (Foucault et al., 2020)). Shielding practices cannot be seen as a long-term solution but rather a temporal ‘removal’ of vulnerable groups from the arena of pandemic, but communicating the issue in these terms helps draw attention to other policy interventions to address the structural production of vulnerabilities, including racism, poverty and gender discrimination (see also Bowleg, 2020; Devakumar et al., 2020).

The report mainly sets aside concerns about equity that have been gathering more attention in global policy, where antimicrobial resistance is increasingly conceptualised as intrinsically connected to unreliable access to diagnosis and treatment (Ledingham et al., 2019; WHO, 2018). When the poorest struggle to get formal or reliable healthcare, self-medication with antibiotics may be a rational response to symptoms (Kristiansson et al., 2009). Other forms of inequality also matter. The use of antibiotics appears to vary according to experiences of childcare, employment and migration status as well as illness. Working parents with young children may feel under pressure to resolve childhood illness quickly to get back to work (Hawkins et al., 2007). People travelling in precarious conditions may be inclined to use antibiotics for prevention of potential infections for themselves and their families (Kamenshchikova et al., 2018).

As discussed by bioethicists in the current COVID-19 crisis, the ability to take time off work to allow recuperation and reduce contagion varies by sector and social status, and these more marginal situations will not necessarily be reflected in discussions among narrow demographics (Napier, 2020; The Lancet, 2020). The likelihood of suffering during the pandemic, and future health crises, is still profoundly socially distributed. People working in precarious conditions with unstable income will be some of the most affected by economic contraction, people living in informal settlements or overcrowded housing and without continuous access to clean water are at the greatest risks of acquiring COVID-19 and bacterial infections that require antibiotic treatment (Jugovic-Spajic, 2020; Takian et al., 2020). The Wellcome Trust report did not address the need for policy responses on antimicrobial resistance to ensure a more equitable distribution of access to healthcare and sanitation. Yet this may open up different alternatives for addressing the problem – i.e. focusing on labour rights and
access to healthcare rather than self-medication; and addressing food insecurity and food production to help counter reliance on antibiotics by farmers. These issues need both local and global or universal responses.

**Engaging in more serious conversations about AMR**

We suggest that serious conversations about the issue of antimicrobial resistance should draw on the wealth of research in social science and bioethics that can help explain people’s understandings and practices. As we have started to show above, in the last five years there has been an explosion of social science and bioethics exploring responses to antimicrobial resistance in different locations around the world (e.g. Gröndal, 2018; Jellef et al., 2019; Littmann & Viens, 2015; Rodrigues, 2020). There has also been a lot of writing about different ways of thinking about human relations with bacteria through discussions of immunity and the microbiome (Brown, 2019; Landecker, 2015; Paxson & Helmreich, 2013). Though Mol’s theoretical work has not been used in any detailed way in these works, we suggest that her emphasis on praxiography (Mol, 2002) – on the ways in which ontological or definitional work is done in healthcare and can be traced through geographically and temporally distributed practices – has much to offer. Learning the lessons from implementation studies we know that universalist framings often fail to engage adequately with context-specific pressures, including political and social contexts that determine the organisation and functioning – the practices – of local healthcare (Grab et al., 2014).

Indeed in recent years empirical social science has joined debates about the likely effectiveness of campaigns by noting that conveying knowledge is often not enough, and messages should be targeted at the real life situations of different audiences. Price et al. (2018) reported more evidence of effective communication in campaigns aimed at specific groups such as schoolchildren and their parents. This and other reviews repeatedly note the difficulty of assuming that offering information will lead to any change in underlying beliefs or practices. High awareness about antimicrobial resistance among professionals may not translate into reduced prescribing (Broom et al., 2014; Charani et al., 2019) and lay people in both the Global South and North who have knowledge about the limits of antibiotic use may still report using them without medical approval (Charoenboon et al., 2019). Studies of prescribers also show that broad spectrum antibiotic prescription is often the result of limited access to lab testing, risks of cross-infection due to overcrowding, and fears that patients will not easily return to the clinic, as well as professional hierarchies and pressures – not the lack of understanding (Pearson & Chandler, 2019). Unless people engage with these pressures, reducing antibiotic prescribing through communication alone is very challenging.

If we truly want to improve communication of antimicrobial resistance to policy makers and to different lay constituencies, we should engage with the genuine multiplicity of stakes in and experiences of antibiotic use to find ways of sparking curiosity and emotional engagement of the kind we have seen for COVID-19. While we entirely support the careful discussion of language, metaphors and framings for the issue, we think the report is ultimately much too narrow in its discussion and does not allow communication on much beyond antibiotic use in human medicine. In particular much of the difficult politics of the issue is missed if we do not pay attention to either industrial production or inequality and vulnerability. Rather than discard themes that worked for smaller numbers of participants, or in particular countries, we suggest efforts at communication ought to deepen engagement with frames that capture local attention. Such differences might provide a means to develop new approaches through further elaboration in English and other languages. Policy focussed recommendations should continue to develop in discussion with social scientific and bioethics work that is often funded by those policy makers, and social scientists and bioethicists should endeavour to publish in ways that are accessible and understandable to non-academic audiences. The multiplicity of antimicrobial resistance meanings and practices should open up a platform for communicators to also be multiple in their metaphors, frames and imaginings of bacteria and its mechanisms of resistance. This effort can also develop in parallel with the rapid expansion of research on pandemics as a public health issue. While we respect the desire to support collective and collaborative responses, avoiding overly simplifying through a ‘one size fits all’ approach, and working sensitively with local differences and policy is part of the solution to both AMR and COVID-19. While a universal frame is tempting, a more nuanced approach – building on a wider range of work in social science and bioethics - will allow us to respond to open up rather than close down understandings of a genuinely complex and ‘multiple’ issue.

**Data availability**

**Underlying data**

No data are associated with this article.

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Mark Davis

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Will and Kamenshchikova provide readers with a social science critique of an important statement from the Wellcome Trust on communications for improved general public awareness and action on antimicrobial resistance. The statement - Reframing Resistance: How to communicate about antimicrobial resistance effectively - is discussed for its benefits and drawbacks and through the lens of the COVID-19 pandemic and the complications it brings to healthcare across the world.

The authors provide a much-needed synthesis of recent social research and point out some ways in which approaches to communications could be strengthened and pitfalls avoided. One of their key points is that Reframing Resistance, despite its ambitious title, fails to fully engage with the needs of diverse individuals and populations in social contexts. Moreover, the Wellcome Trust statement tends to emphasise individual knowledge and perception and therefore glosses over the economic, social and cultural constraints on agency.

Will and Kamenshchikova make the point, too, that without robust analysis of the material and symbolic possibilities that shape the action of publics, communications on their own are unlikely to have much impact. They argue that more attention needs to be given to how individuals use antimicrobials, for what reasons, and in which material circumstances. This approach would avoid the problem of top down messaging derived from expert knowledge systems and the related problem of imposing the AMR crisis on lay publics.

I was intrigued by the authors' call for more extensive use of STS theory and in particular Mol's praxiography. I can see that an open letter does limit scope, but I wanted to know more about how this concept could energise AMR approaches. The statements about One Health and public communications seem to be novel and significant, so it would be helpful to have some links with leading practices in this area if they exist.

Likewise, Will and Kamenshchikova call on social scientists to engage more directly with general
publics. This is a valuable notion and it would be useful if the authors could provide some further
detail and or direct the reader to suitable models of practice.

Overall, I commend the authors on an important and insightful synthesis of the social science
contribution to the global efforts to enhance public awareness and action on AMR.

**Is the rationale for the Open Letter provided in sufficient detail?**
Yes

**Does the article adequately reference differing views and opinions?**
Yes

**Are all factual statements correct, and are statements and arguments made adequately
supported by citations?**
Yes

**Is the Open Letter written in accessible language?**
Yes

**Where applicable, are recommendations and next steps explained clearly for others to
follow?**
Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Social research on AMR policy and communications.

**I confirm that I have read this submission and believe that I have an appropriate level of
expertise to confirm that it is of an acceptable scientific standard.**

Reviewer Report 02 October 2020

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This letter does an excellent job of synthesising and bringing insights from social science research
into AMR to bear on how experts communicate about both AMR and COVID-19. While it mainly
focuses on the limitations of how AMR communication is framed in the recent Wellcome report, it
nicely draws on lessons from COVID-19 to illustrate the importance of key considerations which
have been neglected in a one-size-fits-all approach.
My comments are mainly aimed at strengthening the clarity of the argument for the intended audience.

Opening sentences – these seem a bit insular as the letter starts with reference to a statement about anthropology and then about science and technology studies. While I can see the logic of these points in their own right, I do not think this is the best way to motivate the letter. Why not begin by referring to the problem about health/medical communication the authors want to address? This would strengthen the rationale for the letter.

Main messages – On my reading, there are three key issues they are highlighting. Notably, they are saying that in the case of COVID-19, at least the first two of these themes are being widely acknowledged by medical experts and health researchers even beyond the social sciences and so there are lessons we can learn for communicating AMR. Perhaps this point could be signalled more clearly at the start.

One, reminding the public about the benefits of modern medicine in AMR stewardship campaigns needs to be tempered by some recognition of the limits of this enterprise. Both AMR and COVID-19 show that simple or mundane interventions may be at least as important as ‘high-tech’ medicine – and in some instances, more crucial as experts are often quoted as saying with respect to the pandemic. So perhaps this heading should read something like ‘Acknowledging the limits of modern medicine’. This would match the heading of the next two sections, both of which start with a verb.

Two, attending to inequality and vulnerability is critical. In addition to the social science references they cite (to which they might add Parthasarathy (2020) commenting in Nature¹), it might be valuable to draw attention to the fact that there is now significant attention to this issue in the case of COVID-19 in flagship Nature and Lancet journal families (in addition to the Lancet 2020 piece on vulnerability which they cite). For example: Gray et al. (2020)² on those made vulnerable by systemic inequity; as well as comment pieces, e.g., Ahmed et al. in Lancet Public Health³.

Three, communication frames must attend to specificities of local context. They explain this very well with reference to a large body of social science work. But I think the sentence about Annemarie Mol’s work is a bit abstract due to the jargon; it could be rewritten to clarify what they are taking from it.

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Is the rationale for the Open Letter provided in sufficient detail?
Partly
Does the article adequately reference differing views and opinions?
Yes

Are all factual statements correct, and are statements and arguments made adequately supported by citations?
Yes

Is the Open Letter written in accessible language?
Partly

Where applicable, are recommendations and next steps explained clearly for others to follow?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Social sciences of AMR; Science and technology studies; Science communication.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.