Three Creative Futures Methods for Imagining Life in a Post-Antibiotic World: Report on a Speculative Cross-Sector and Cross-Campus Conversation

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Executive Summary

This report describes a day that was dedicated to thinking about post-antibiotic futures through trialling 3 different 'Creative Futures' methods with a group of participants from a diverse range of disciplinary backgrounds. The event was co-organised by Defence Science and Technology Laboratory (DSTL) and the Institute for Social Futures (ISF) at Lancaster University, where it took place on 16 January 2020. The workshop was funded by DSTL's Future Threat Understanding and Disruption (FTUD) Programme and was designed to allow exploratory interdisciplinary collaboration that might open up new ways of thinking and planning for all involved. Reading this report will give insight into: (1) the background science that makes living in a world where antibiotics are no longer effective a plausible future worthy of consideration within the FTUD Programme; (2) three novel Creative Futures methods that were used to tease out possible unforeseen social, political and ecological consequences of such an emergent environment and stimulate new kinds of cross-disciplinary exchange: the Consequences game, Narrative World Building, and combining Three Horizons with Verge; (3) key insights that participants gained from the day, including future possible development of both the topic at hand and the methods used to explore it.

1. Who was involved and why?

5 officials from DSTL joined forces with 25 researchers from across the Faculty of Arts and Social Sciences, the Faculty of Health and Medicine, the Faculty of Science and Technology and the Management School at Lancaster University. The primary aim was to generate future visions of what a post-antibiotic world might look like in order to ascertain whether further strategic work is necessary in this area at this juncture. The secondary aim was to establish an interdisciplinary conversation across sectors, creating an academic and practitioner space for shared information and practical experience.

The FTUD Programme works to ensure that the UK understands the potential defence and security impact of emerging science and technology in order to reduce the chance of future 'shocks', and that the UK is prepared to respond to and counter future threats. Assessing the defence and security implications posed by novel and emergent technologies, such as the hostile use of advances in autonomy, can better prepare the UK defence and security

communities to respond to and counter these threats. The programme conducts assessments of emerging challenges raised by:

- developments across the full spectrum of science and technology
- policy
- changing and emergent environments
- relevant social, legal and ethical opinion that could have a significant impact on UK defence and security.

This will reduce the likelihood of future technological 'shocks' and support the UK in maintaining freedom of action in the face of emerging threats to its capability. The programme works across UK Government, with key international allies and with partners from industry and academia. In facilitating a range of views from right across the disciplines represented at Lancaster, the workshop was deliberately designed to take an exploratory approach to creating new knowledge and fostering thinking 'outside the box' for all involved. In line with the Programme, all participants were therefore expressly encouraged to think about and holistically engage with potential unforeseen consequences, also termed 'black swans', of the possible imminent demise of antibiotic medicines.

2. Why post-antibiotic futures?

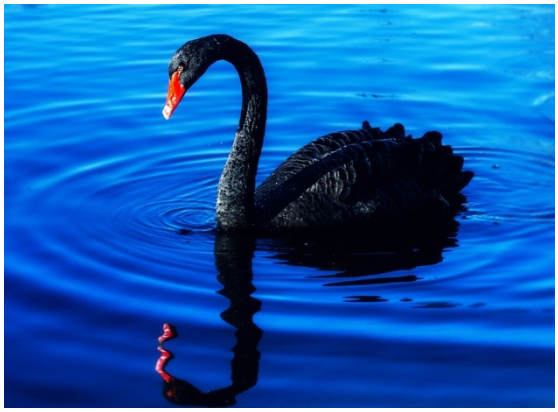
A post-antibiotic world is a challenge, but one that looks possible when considering the increasing global incidence of resistance to antibiotics. Deep inequalities in terms of health care, access to clean water, an increase in displaced people, drought and disease all compound the difficulty of finding effective possible alternatives to antibiotics.

At the same time, we have entered an era of doubt concerning the validity of expert opinion, the trustworthiness of political leaders, and the reliability of mainstream media. In a world increasingly influenced by 'fake news', there has been a shift not only in how news is shared, as diffuse social media outlets increasingly undermine and displace broadcast and print, but also in how people consider what is true or false. This new climate of opinion complicates the issue of how best to share information on something as frightening as the prospect of a world where antibiotics no longer function in the treatment of infectious disease.

With these various complexities in mind, it is important to develop modes of thinking that produce multiple ideas about what such a future might look like and how we might adapt to it. For the purposes of our event we assumed that no future progress will be made in the development of new antibiotics. We do not necessarily maintain that this is inevitable, but we chose to make this assumption in order to focus our attention on a future world where it is considered likely. The day centred on the testing of three methods to develop possible future post-antibiotic worlds: *Consequences*, *Narrative World Building*, and *Three Horizons & Verge* with Andrew Curry. All three methods were designed to produce iterative visions for possible outcomes in a future with no access to antibiotics.

3. Why Creative Futures?

The organisers' aim was for participants to think about 'black swans' in a post-antibiotic future. Black swans are unpredictable or unforeseen events, typically with extreme consequences, and contemplating such events can support the re-shaping of existing practices within society and government planning. The ultimate aim was to prepare for 'unknown' alternatives to the current status quo and think through how we might support the necessary change in societal and individual behaviours that could arise from increasing resistance to antibiotics. In order to do this, we need methods that are capable of radically breaking with the known parameters. Conventional trends/drivers-led scenario processes tend to produce relatively conventional understandings of the future. They are often surprisingly deterministic and do not challenge prevailing assumptions about the future. The kinds of black swans that a post-antibiotic world throws up could present us with futures that look very different to our current world order, and so we needed some way of creatively breaking with the known world and re-orienting ourselves in a new one.



In this workshop, the methodologies and processes employed combine facilitation and group-work using tools from the interdisciplinary domain known as Futures, but with a particular emphasis on the social context in which our futures will unfold. Futures is more than just forecasting individual trends, important though that can be for some applications. In particular, Social Futures as practised at ISF seeks to produce a fuller understanding of possible future lived experiences in all their richness and complexity. Creative Futures methods – specifically using techniques from creative practice to facilitate discussion around alternative modes and contexts – are key to making these worlds feels viscerally urgent to decision makers in the present moment. All three creative methods employed in this workshop harness participants' imaginative capacities in order to recognise, as well as disrupt, the narrative shapes our visions of the future take. The aim was to break the frame of present expectations and introduce a new set of questions into the discussion—to which technical expertise can later be applied.

4. What We Did

4.1 Scoping the Problem

We opened the day with a brief outline of the FTUD Programme given by the FTUD Principal Advisor, followed by three presentations from Lancaster University researchers in Biomedical & Life Sciences. This provided a conceptual and scientific framework for the workshop activities. We began by reviewing the history of antibiotics. The discovery of antibiotics in the 1920s, and their mass marketing from the 1940s, not only dramatically decreased mortality from infections but were also a major component in what William Rosen (2017) has termed

the 'therapeutic revolution' – a series of major mid-20th century medical breakthroughs in the treatment of several diseases (including, for instance, the development of insulin, the first anti-depressants, hormonal contraception, anti-inflammatory compounds etc). As well as impacting strongly on the everyday well-being of society, the therapeutic revolution transformed the self-image of the medical profession from a practical trade involved mostly in minor surgery, home obstetrics and the purveyance of general health advice, into an elite tribe of technocratic intellectuals dispensing pharmaceutical 'miracle cures' to a gratefully adoring population. The post-antibiotic world threatens to undermine this doctor-patient relationship paradigm that has endured for nearly a century and which is central to continuing public enthusiasm for the funding of state health services. The post-antibiotic world may be the handmaiden of a post-NHS world.

We then gained an overview of the molecular basis of antibiotic resistance, noting in particular that antibiotic resistant bacteria are found in the general environment, not only in human bodies. With this insight, there is a need to consider comparisons and relationships between the day-to-day social environment and clinical environment, which is lacking. We explored further what such work might entail through the case study of the project, Drivers of Resistance in Uganda and Malawi (DRUM 2020). This project is looking at middle-income homes in urban, peri-rural and rural environments in Malawi and Uganda. Researchers have found that similar profiles of antibiotic resistance are often shared between animals, human households, and the environment in ways that have not been generally considered in previous discussions of the subject. Social mixing, livestock mixing, zoonotic transmission (transmission from animals to humans) and anthroponotic transmission (the converse), are just a few examples of mechanisms of connectivity that add challenges to the study of antibiotic resistance and its spread.

4.2 Making Creative Futures: Our Methods

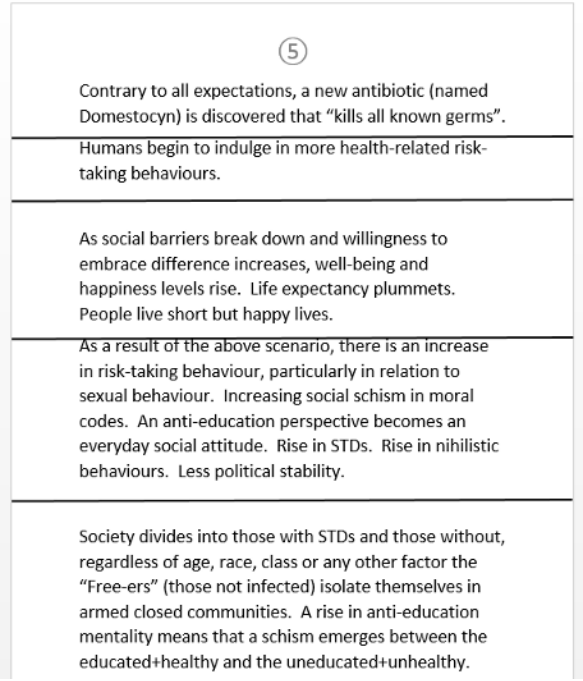
Following this introduction to the science behind the topic, we moved straight into our participatory Creative Futures methods. Each of the following exercises took between one and one and a half hours. Particularly exercises 2 and 3 could readily have been extended.

4.2.1 'Consequences': From Victorian Parlour Game to High-Speed Collaborative Global Politics

First adapted for use in a Futures context in the 1970s by Edward Cornish, 'Consequences' is a variant of a Victorian parlour game (Cornish 1977). The original game required players to take turns to deliver quasi-random responses to a structured set of prompts. Cornish's refurbished version, by contrast, has no prompts, other than an initial scenario, and requires players to respond directly to the input of the players in the previous turn.

Five initial scenarios were devised (See Appendix 1), each referring to an issue concerning antibiotic resistance, and delivered on paper to the players assembled in five groups. Each group had several minutes to discuss the scenario, and postulate a new scenario rising as a

direct consequence of the first. Group membership was deliberately structured to ensure an inter-disciplinary mix, and each group member was encouraged to bring their own disciplinary perspective to the debate.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Contrary to all expectations, a new antibiotic (named Domestocyn) is discovered that "kills all known germs".

Humans begin to indulge in more health-related risk-taking behaviours.

As social barriers break down and willingness to embrace difference increases, well-being and happiness levels rise. Life expectancy plummets. People live short but happy lives.

As a result of the above scenario, there is an increase in risk-taking behaviour, particularly in relation to sexual behaviour. Increasing social schism in moral codes. An anti-education perspective becomes an everyday social attitude. Rise in STDs. Rise in nihilistic behaviours. Less political stability.

Society divides into those with STDs and those without, regardless of age, race, class or any other factor the "Free-ers" (those not infected) isolate themselves in armed closed communities. A rise in anti-education mentality means that a schism emerges between the educated+healthy and the uneducated+unhealthy.

Figure 1: An example of a completed Consequences sheet

The groups then wrote their response below the initial scenario, folded the paper to allow only their response to be seen, and passed the paper anti-clockwise to the adjacent group. The response discussion and writing process was then repeated and the paper re-folded so that only the most recent response was visible. After five such phases the paper completed its circuit and arrived back at its initial group, to be unfolded, read out to all participants and then discussed. The collectively composed narratives displayed the contingency of future events, illustrating how both policy decisions and social forces send often unexpected ramifications into the future – the black swans previously discussed.

Cornish suggested that Consequences be played by the same groups on a regular basis. In the 1970s, this would have been done postally, but modern variants using email are easily envisaged. Cornish believed that 'consequential' thinking could be developed like a muscle, with improved performance at each event. The ideal outcome is a sequence of scenarios that are individually plausible and have compelling logic in their transitions, but which reach the black swan by the endpoint.

In the workshop, Consequences was played for two central reasons. One was to act as an icebreaker - which was successful. Participants became acquainted with one another, both on a personal level and in terms of their individual disciplinary expertise. However, the deeper purpose was to open up the day with an easy introduction to Futures thinking, developing the inherently creative technique of scenarios-building and illustrating the concept of black swans. Crucially, the exercise actively introduced the idea that, to imagine a future, one's thinking needs to be divergent as opposed to convergent. In Consequences, 'planning' a future is replaced by the contingent emergence of an unplanned scenario. This can be both fun and disquieting, because the outcomes can be both apparently logically compelling and highly unexpected. Participants are both warmed up for a day of Social Futures thinking and shown that Social Futures necessarily occupies a methodological space overlapping multiple disciplines, where divergence to the unexpected/unplanned is more likely than convergence to the expected/planned.

4.2.2 Narrative World Building - Generating Multiply Contextualised Futures

This session employed Creative Futures methods that draw on creative writing instruction to help explore some of the potential future scenarios that might unfold in a post-antibiotic world (Reason & Heinemeyer 2016; Eidinow and Ramirez 2016; Raven and Elahi 2015; Palmer 2014; MacDonald 2011; Bosch 2012; Cornelissen and Werner 2014; Ramirez and Wilkinson 2016; Judge 1991). Specifically, the session reflected on the usefulness of building future scenarios around fully realised characters – fictional human beings – who are embedded in those future worlds. The questions we asked were: do we imagine the future differently when doing so through the eyes of another, imaginary person? What new, previously hidden, insights into the world might such work in developing characters and contexts provide us with? Moreover, how might the ensuing scenarios have a different or even greater impact on the audiences engaging with them?

We began the session with a 10-minute introduction drawing on information distributed in a handout (see Appendix 2). This explained to the group more about the rationale behind using character-work and provided an accessible guide in how to go about creating characters. We then glossed the example of Val McDermid's play *Resistance*, to show how working from the characters to the story, rather than the other way around, creates an overall more engaging and grounded result, as well as enabling participants to develop futures they might not have anticipated. This was a challenge for most groups, who felt compelled to sketch out the macro-level world before populating it with characters. Our creative facilitator provided individual guidance to groups, which were a mixture of DSTL and Lancaster colleagues, to help them resist that temptation. The groups then worked on their characters for approx. 30 minutes in isolation and in conversation with the rest of their group. The next challenge was for the groups to spend time devising a potential scenario out to 2050 that would plausibly bring the characters together. This formed the basis of their snapshot synopses of a future post-antibiotic world, which the groups then drafted (approx. 30 mins) towards the end of the session and then shared in plenary.

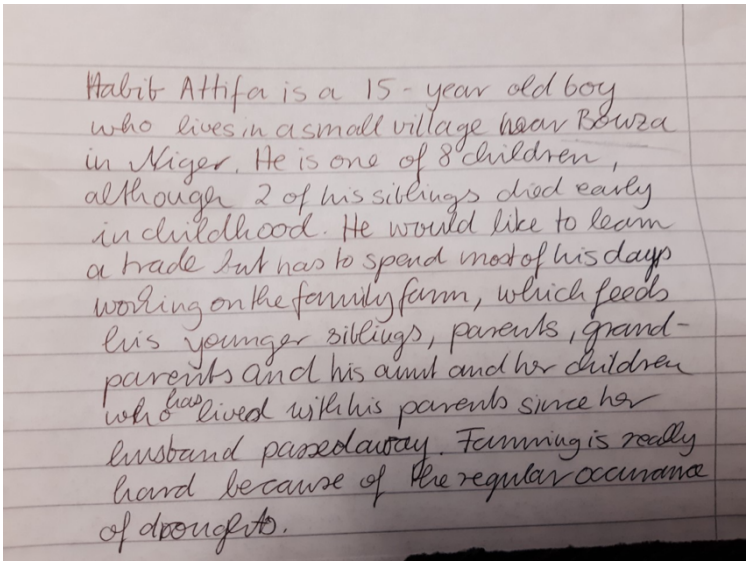
Habib Attifa is a 15-year old boy who lives in a small village near Bouza in Niger. He is one of 8 children, although 2 of his siblings died early in childhood. He would like to learn a trade but has to spend most of his days working on the family farm, which feeds his younger siblings, parents, grand-parents and his aunt and her children who has lived with his parents since her husband passed away. Farming is really hard because of the regular occurance of droughts.

Figure 2: An example of character work produced during the session

For a session like this, the creative facilitator role is key as they not only need to provide clear guidelines to the whole group, but they also need to coach individuals through their blocks and obstacles, help groups who are struggling to merge their characters in a plausible world, and give groups who race ahead more work to do.

The group-work produced themes and characters in a future world that were both relational and functional, because participants worked together. It was notable that the post-antibiotic worlds produced mostly pessimistic and threatening differences, although the contexts in which these unfolded were fascinating: floating islands, dysfunctional social structures that relied upon sanitized spaces, and a rewards system for being vegan that followed compellingly from the drastic reduction in livestock farming that would happen if antibiotics were no longer available. Another emerging speculation was that concepts of life and death would change, including ways of disposing of bodies, prompting religious practices to shift as well.

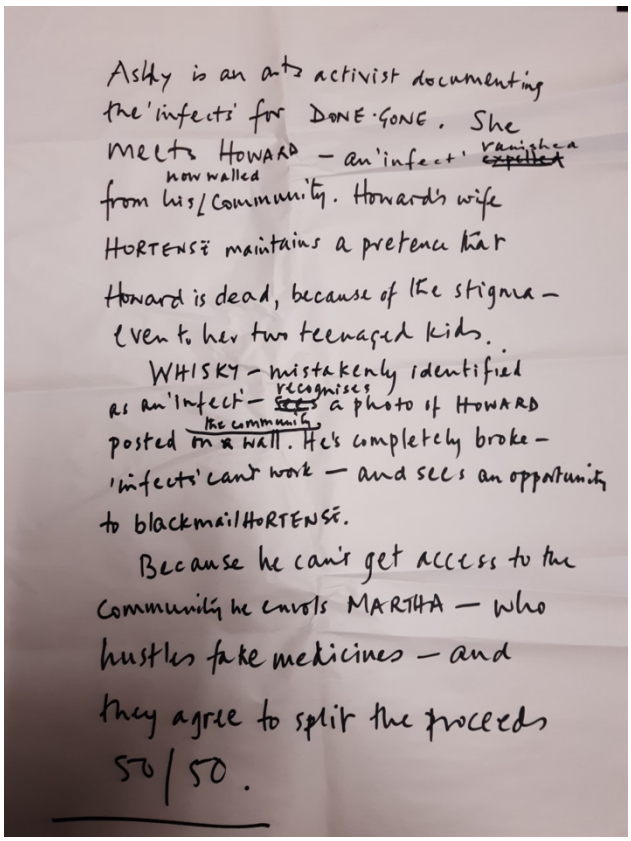

Figure 3: An example of how functional and relational themes were developed and the new worlds that emerged as a result

4.2.3 Three Horizons & Verge: Merging Trends Analysis with Values-Based Forecasting

After the co-creation of multiple futures through our individual worlds, we turned to a mix of two further Futures method to flesh out some of the practical details that living in the worlds we had just narrated would entail. We did this by drawing on two established ways of plotting changes in social values, beliefs, practices and innovation: The 'Three Horizons' method which was developed by Bill Sharpe, and the 'Verge Framework', which was developed by Richard Lum (Sharpe 2015, Curry & Hodgson 2008, Lum 2015). Given the extent to which this kind of plotting of imagined detail mapped on to the creative work we had just undertaken, we include the particular mix of these two methods as trialled in our workshop under the umbrella term of Creative Futures.

First of all, in a plenary session we reflected on current assumptions and drivers determining how we think and feel now about antibiotics and related health questions. This yielded a baseline set of values and beliefs that we assessed in line with probable futures in a world where antibiotics have become dramatically less effective:

Public assumption	Future trend
Infections are treatable	Increasingly less true
We do not need vaccines for everything	Currently true, but prevention via vaccination may become preferred to treatment via antibiotics
Affordability levels will continue	Unlikely
Good access to medicine	Means of dealing with infections may need to change, not always to the public's taste
There are enough antibiotics to go around	Already not true
Life should be prolonged	Aspiration of public for longer, healthier lives unlikely to change, even as the prospect becomes more remote
Treatment = prescription	Already closing down due to changes in NHS prescription guidelines

Having thought about these concrete details and their likely trajectory, we then returned to our narrated worlds from the previous exercise and were instructed first in the Three Horizons method and then in the Verge Framework.

The Three Horizons exercise is a simple and intuitive tool for thinking about the future. It helps groups explore systemic patterns to identify which of the dominant patterns are no longer fit for purpose, how the emerging trends can shape the future, and what visionary action is needed to move us collectively towards a viable future.

The future can be perceived through three lenses:
Horizon 1: Continue Business as Usual
Horizon 3: Vision of a Viable Future
Horizon 2: Innovation towards the Vision

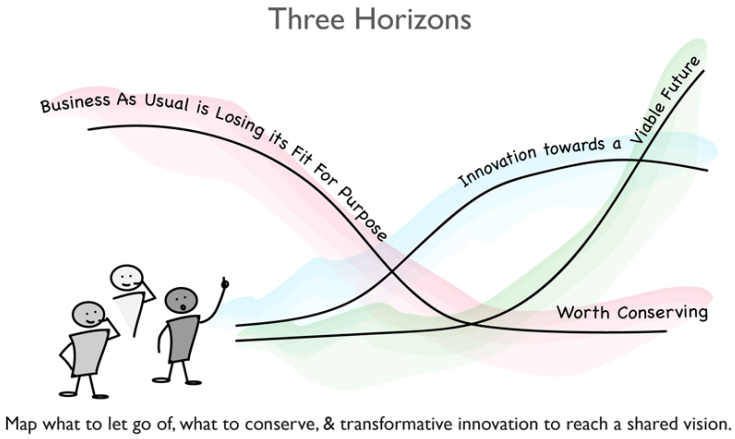

Figure 4: The Three Horizons method

The idea was to consider how to *influence* possible futures, even though they could not be controlled, and, in so doing, think through other possible social ramifications of a particular course of action. Groups participated in scoping, ordering, investigating, and integrating their

ideas, looking at pockets of future in the present, pockets of the present that will persist into the future, and the areas and opportunities that will emerge as we move towards the futures described in our narrative world.

At this point, instruction was also given in using the Verge Framework. Its co-founder, Richard Lum describes it thus: 'The framework is composed of six domains of human experience: Define, Relate, Connect, Create, Consume, and Destroy. These domains can most easily be understood as questions that researchers and process participants ask about how people are experiencing the world. How do we Define things? How do we Relate to one another? How do we Connect to each other?' (Lum 2015). Asking ourselves these structured questions allowed us to continue filling in our 'Three Horizons' maps, but with constant reference to the practical systems and values that will underpin the worlds we have imagined. Mixing in this second discursive method with the somewhat more schematic first meant participants immersed themselves more in what living in the worlds – and undertaking the journey towards them – might actually feel like.

Intervention became deeply problematic in all groups' 'worlds' because it often meant infringing extensively on individual autonomy, and there was a tension between intervention and care. Mixing Three Horizons with Verge helped to ground the narrated worlds and think about them in terms of operationalised planning and intervention, which precisely made the ethical stakes visible and open to informed challenge.

5. Key Insights

At the end of the day, participants were invited to share what they were thinking about in light of the workshop and where they might like to see future work undertaken. The responses were as follows, and give a flavour of the individual discussions that unfolded in the coffee breaks:

- Value chain and food safety and supply
- Medicine and public health in a stretched health system
- Rural / urban inequality and inequity
- Interesting new methodologies for creating interactions and exploring change
- Future human mobility and travel for infectious disease scenarios
- Explore in practical terms the immediate near-future consequences of anti-microbial resistance 'totality' – know how we could be affected medically, socially and politically by the absence of antibiotics
- Apply the format of this workshop to a dedicated climate crisis event
- Apply the format of this workshop to work in the medical humanities

6. Some Conclusions and Reflections

In assessing their work, people mostly came back to the challenge of making systemic change – and turning it into action. A unanimous opinion was that implementing ideas for systemic change to protect citizens in a post-antibiotic future would have to be carefully thought

through in a democratic society and even more so in a precarious society. This underscored the shared nature of the problem – DSTL and the NHS may have rather different domains of responsibility and expertise, but decision makers are often faced with similar kinds of ethical dilemmas. For defence thinkers there are always important considerations of the ethical limits to military intervention. Medical thinkers are now commencing the same conversation on the ethical limits to measures to preserve the efficacy of antibiotics and thereby delay the arrival of the post-antibiotic world.

The concerns articulated among the participants from Lancaster's Biomedical and Life Sciences department were mostly associated with the failure of imagination in thinking about antibiotic resistance: it is not a question of if this will happen, but when and with what consequences. Scientists have conventionally seen technical, funding and political problems as the main obstacles in the way of the development of new antibiotics. However, our participants from other disciplines emphasized how public opinion drives much of the ability and capacity for military or public health to intervene.

Narrative scenarios produced divergent worlds that differed from current public discourse and assumptions – a useful outcome in the context of helping us get to grips with how we might prepare for an unknown context. The methods involved a minimal to modest amount of guidance, which led to divergent yet meaningful outcomes moving between varied areas of shared expertise. It was noted that moving between systems is messy and turbulent and the first step to changing a system is a commitment of resources and time for planning. The methods were useful and valuable in terms of thinking about the wider and longer-term consequences of various possible post-antibiotic futures.

Overall, the event demonstrated the importance of using a variety of Creative Futures methodologies, given the particular challenges associated with the likely future of antibiotics. Technocratic or biomedical changes to living in a post-antibiotic world are not always the most difficult aspect to anticipate. The difficulty lies in anticipating the social and institutional structures around the new technologies, processes and procedures, and the evolving narratives of change that might affect the processes and experiences of the future. It is this more complex area that Creative Futures methods helped us to begin to consider in pragmatic, applicable ways, engaging both the hearts and minds of our disciplinarily diverse set of participants.

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Appendix 1: 'Consequences' outputs

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Pneumonic plague breaks out again in Madagascar, and this time it proves to be resistant to antibiotics.

A blockade is established around Madagascar by the Central African Union preventing goods and travel. A large number of deaths occur in the island due to the outbreak of resistant plague.

As a consequence of the above scenario, the price of vanilla escalates, impacting its use in medicines and driving international & black market trade tensions.

Madagascar becomes a completely lawless state run by competing extremist groups and there is massive environmental damage to the unique flora and fauna. Meanwhile Iceland fills the demand for vanilla, greatly increasing its wealth and causing a steep rise in population.

Spiking global vanilla prices lead to illicit black market production – vanilla wars, people go blind. In Madagascar, a UN Environmental Programme Task Force intervenes to protect species and broker peace.

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A well-known popular recording artist reveals he is suffering from multi-drug-resistant super-gonorrhoea.

As a results of the reaction, a mass "me-too" movement begins revealing the true spread of super-gonorrhoea + producing resultant litigation around non-disclosure.

A law making "knowingly interacting with society, in a way likely to cause transmission whilst harbouring a resistant bacteria" is passed, punishment can include segregation. Concomitant social stigmatisation + marginalisation of sufferers akin to HIV/AIDS in the 1980s.

Live/daily updating of personal biomic status displayed to everyone via a badge or sign on clothing. This requirement is widely scammed/subverted.

A new class system develops leading to apocalypse OR a greater sense of humour.

③

The closure of oil fields as a result of decarbonisation policy causes an acute shortage of chemical raw materials in the pharmaceutical industry.

As a result, access to medicine becomes the monopoly of the rich, with widening health inequity and health inequality, and society's poorest turning to traditional/shamanic/faith healing practices.

Growth in wider more accessible health-based outcomes – less reliant on medical technologies and big pharma, for those who don't have access to the medical system. Think: barefoot doctors with iPads.

Less spending on health care, more spending on the underlying causes of health inequalities – housing, education, pollution etc.

Increased intergenerational tensions will lead to seismic political changes re. organization of democracy/voting system.

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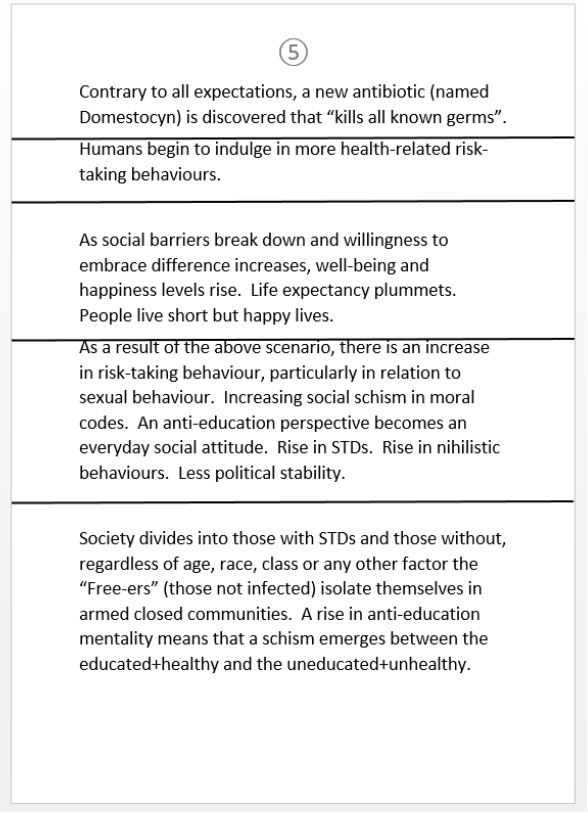
Microscopic life forms are discovered on Ganymede, a moon of Jupiter.

They end up on Earth, of course. The response is massive cult-like behaviour, globally. Some are defensive, blame-based, some positive, benign, all problems will be solved.

There is a breakdown in pro-social behaviour, an increase in scape-goating, and a deepening of social inequalities, globally.

Autonomous self-organising settlements develop. New languages and artefacts are developed.

Re-conceptualising legal boundaries and territories. More horizontal and egalitarian power structures.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Contrary to all expectations, a new antibiotic (named Domestocyn) is discovered that "kills all known germs".
Humans begin to indulge in more health-related risk-taking behaviours.
As social barriers break down and willingness to embrace difference increases, well-being and happiness levels rise. Life expectancy plummets. People live short but happy lives.
As a result of the above scenario, there is an increase in risk-taking behaviour, particularly in relation to sexual behaviour. Increasing social schism in moral codes. An anti-education perspective becomes an everyday social attitude. Rise in STDs. Rise in nihilistic behaviours. Less political stability.
Society divides into those with STDs and those without, regardless of age, race, class or any other factor the "Free-ers" (those not infected) isolate themselves in armed closed communities. A rise in anti-education mentality means that a schism emerges between the educated+healthy and the uneducated+unhealthy.

Appendix 2

Handout for Narrative World Building - Generating Multiply Contextualised Futures

In this workshop session, we will be using creative futures methods to help us explore some of the potential future scenarios that might unfold in a post-antibiotic world. Specifically, this session will be reflecting on the usefulness of building future scenarios around fully realised characters – fictional human beings – who are embedded in those future worlds. The questions we will be asking ourselves are: do we imagine the future differently when doing so through the eyes of another, imaginary person? What new, previously hidden, insights into the world might character work provide us with? And how might the ensuing scenarios have a different or even greater impact on the audiences engaging with them?

Resistance by Val McDermid (BBC Radio 4, 2017)

Developed through the Experimental Stories scheme, a collaboration between BBC Radio 4 and Wellcome, *Resistance* examines an extreme scenario of what happens if antibiotics stop working.

McDermid in an interview with *The Guardian:*

"Trying to convey the scale of something like this while still keeping the drama on a human level is very tricky. Listeners have to engage with the characters. They have to care about them. Combining that with the urgency of such a global threat is really challenging."

To get round this problem McDermid has placed a journalist – to be played by Gina McKee – at the centre of the action in *Resistance*.

"She is there at the start of the whole thing. She has a husband, children and friends, who are all closely involved. She is the human heart of the drama, if you like. And there are others – scientists and researchers. I keep coming back to the human aspect of it all. Then the epidemic breaks out and the characters have no way of knowing who will be affected. Some will have natural resistance, but no one knows who that will be. So in that sense, the whole world is threatened – which is, of course, the situation in real life."

How to create a fictional character:

1. Make your character a fully fleshed-out human being.

2. Give your character a backstory.

3. Give your character ***something*** to believe in, i.e. clear motivations.

4. Use minor characters to challenge your main character.

5. Whenever possible, avoid clichés.

Now create a character profile. Make notes on elements such us:

- Where your character was born and grew up
- What your character's political, philosophical or religious views are
- Your character's greatest fears and desires
- What your character is most proud and most ashamed of
- What your character values and dislikes most in others
- Stock phrases or physical mannerisms that your character uses – these should be consistent with your character's background and psychology

Now draft a synopsis of your story:

For example:
The synopsis of *Resistance* from the BBC

It's the Summer Solstice weekend, and 150,000 people have descended on a farm in the North East of England for an open-air music festival. Reporting on the event is journalist Zoe Meadows, who files her copy from a food van run by her friends Sam and Lisa.

When some of Sam's customers get sick, it looks like food poisoning, and it's exacerbated by the mud, rain and inadequate sanitary facilities. It's assumed to be a 24-hour thing, until people get home and discover strange skin lesions, which ulcerate and turn septic. More people start getting ill - and dying.

What looked like a minor bug is clearly much more serious- a mystery illness that's spreading fast and seems resistant to all antibiotics. Zoe teams up with Sam to track the outbreak to its source; meanwhile, can a cure be found before the disease becomes a pandemic?