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Increased strategic thinking is needed about antimicrobial use and antimicrobial resistance (AMR), which has been termed the quintessential One Health challenge[1] and compared to greenhouse gas emissions (GHG) mitigation or abatement.[2] The parallels between these wicked problems are indeed striking. AMR is characterised by market and institutional failures in terms of externalised costs by antimicrobial users and the absence of global regulatory or governance architecture. Multiple human and animal sources of antimicrobial pollution exist that are further complicated by complex environmental interactions, pooling, and persistence. Multiple potential entry points could be used to modify clinical and veterinary uses of medicines and detect and diagnose AMR. Many interventions complement or interact in unanticipated ways and the human dimension to antimicrobial use raises unresolved behavioural challenges. Finally, political economy dimensions can create conflicts between public and private sector interests and the interests of developed and developing countries. These conflicts can inhibit innovation and the adoption of even the most technically effective measures. Overall, the science policy discourse can seem incoherent and overwhelming. Recourse to One Health, planetary boundary, or ecosystem service rhetoric can only go so far. An immediate question is what to do first, or how to set priorities for action, on the basis of a consensus of what is and isn't known.

This situation is reminiscent of the climate change experience. A decade ago, much unstructured discussion occurred around different GHG abatement measures, but an understanding of the relative cost of avoiding a tonne of carbon dioxide equivalent emission was unclear. Some governments took the initiative to develop a more rational approach to the problem, drawing on environmental economics and related theories of pollution control to develop marginal abatement cost curves (MACCs) to rank cost competitive interventions.[3] This information provided a basis for estimating carbon budgets sector by sector by comparing marginal abatement costs. This comparison includes agriculture which is a biophysically complex sector for seeking GHG mitigation. Could adopting a similar approach for the identification of cost-effective ways to reduce antimicrobial use, if not AMR outcomes, be beneficial?

MACCs form a framework to cumulate data on effectiveness and to measure implementation cost to estimate technical or economic and feasible mitigation potentials, the latter being mitigation achievable with existing or potential policy instruments and behavioural barriers. For given assumptions inherent in their construction, MACCs help frame numerous questions for research and policy, including: what are the known feasible abatement measures, how do they work, and what is their current baseline use; to what extent can measures be applied (alone and in combination) and with what approximate outcome above baseline; what are the costs including any ancillary effects; which measures are relatively cost-effective including win-win measures (ie, implying negative or cost savings); which policies apply to which measures; and which measures need more research, are relatively uncertain, or out of scope because of cost or policy and regulatory feasibility?

The climate experience shows the value of an analytical framework to organise disparate information and to improve scientific dialogue, consensus, and policy evidence on what is known. Development of a MACC is typically multidisciplinary, collaborative, and evolutionary, allowing stakeholders to clarify assumptions, add and scrutinise measures, and validate input data. Such frameworks offer a template for focusing discussion across public and private sectors nationally and internationally.

AMR research and policy urgently needs a similar framework to focus efforts and to organise information on entry points applicable at different scales (eg, farm, production unit, supply chain, and region or country for antimicrobial use in agriculture). A conspicuous gap in global efforts to combat AMR exists. An international scientific collaboration to advance this agenda makes sense for transparency and impartiality. Climate change mitigation has shown the way.

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2 Woolhouse M, Farrar J. Policy: an intergovernmental panel on antimicrobial resistance. *Nature* 2014; **509:** 555–57.

3 Committee on Climate Change. Building a low-carbon economy—the UK's contribution to tackling climate change. Dec 1, 2008. https://www.theccc.org.uk/publication/building-a-low-carbon-economy-the-uks-contribution-to-tackling-climate-change-2/ (accessed May 20, 2018).