Antimicrobial resistance: **Overcoming challenges**

BMO Global Asset Management

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AMR overview

2020 is the Investor Year of Action on Antimicrobial Resistance (AMR) – a collaboration between the Farm Animal Investment Risk & Return Initiative (FAIRR), the Access to Medicine Foundation, the United Nations Principles for Responsible Investment (PRI), and the UK Government to galvanise investor efforts to address AMR.

BMO GAM is participating as an Investor Partner because we believe that AMR is a serious threat to global public health that investors need to take action against.

Recap – What is AMR?

AMR (antimicrobial resistance) is a natural phenomenon in which microorganisms develop resistance to antimicrobial agents. However, it is being accelerated by poor stewardship of antibiotics in healthcare and farming: antimicrobial-resistant microbes can spread between people and animals, and from person to person. As a result, a growing number of common bacterial infections – including urinary tract infections, gonorrhoea, tuberculosis and pneumonia – are becoming more difficult to treat.

If antibiotics continue to lose their effectiveness, caesarean sections and chemotherapy, as well as other commonplace medical interventions, could become extremely high risk, severely undermining modern medicine.

Catherine McCabe
Senior Associate, Analyst, Responsible Investment

AMR and COVID-19

AMR has been overshadowed by COVID-19. But the uncomfortable truth is that AMR is also an ongoing pandemic, albeit a slow-motion one.

In our last Viewpoint about AMR, we explained why our engagement on this global problem needs to be cross-sectoral, encompassing food producers and purchasers, as well as pharmaceutical companies pursuing antimicrobial research and development (R&D).

This approach is underpinned by the World Health Organisation's "One Health" philosophy: **stakeholders in human, animal, food and environmental health need to collectively take action**.

[1] https://www.bmj.com/content/369/bmj.m1983

In August 2020, we spoke on the Spotlight on UK | Investor Action on AMR panel at the AMR Conference 2020 introduced by Dame Sally Davies, UK Special Envoy on Antimicrobial Resistance. She used the following analogy to compare AMR with COVID-19:

> COVID-19 is like dropping a lobster into a pan of boiling water: it knows instantly it's in trouble, and so do we watching it boil. AMR on the other hand, is like putting that lobster into a pan of cold water and heating it up slowly. It doesn't recognise it's in trouble until the water starts to boil. By then of course – we all know – it's far too late, and the pain is much much worse. I put it to you that we're currently sitting in a pan of very warm water, but it isn't too late to cool it down and rescue that lobster. Rescue our antibiotics, and treat infections effectively. #rescuethelobster
>
> **Dame Sally Davies**
> **UK Special Envoy on Antimicrobial Resistance**

We believe that global action on AMR is needed now, not least because – to use Dame Sally's analogy – COVID-19 is heating the lobster's water. As we highlighted in our Viewpoint about COVID-19 and the pharmaceutical industry, the pandemic is driving inappropriate antibiotic use. According to a study of COVID-19 cases, mostly in Asia:

70%

of patients had received antimicrobial treatment despite...

10%

on average having bacterial or fungal coinfections.[1]

Our engagement on AMR

AMR can seem like a formidable opponent, but there are chinks in its armour. Via our engagement and research, we have identified a wide variety of initiatives – some outlined in the case studies in this Viewpoint – aimed at overcoming the myriad underlying challenges.

In 2019 and 2020 (to date) we have engaged **47** companies on AMR, leveraging the research of FAIRR and the Access to Medicine Foundation – organisations which are evaluating how food companies and pharmaceutical companies are addressing AMR, respectively. This diagram shows a breakdown of our engagement focus areas:

11 Pharmaceutical companies

8 Animal health companies

- Research & Development
- Responsible manufacturing
- Appropriate stewardship

11 Food producers

17 Restaurant & supermarket chains

- Antibiotic policy
- Animal welfare
- No routine antibiotic use

Why is AMR a highly material issue **for food companies?**

c. 73%

the percentage of global antibiotic use that animal protein production accounts for [2]

Demand for meat, dairy and fish is growing in low- and middle-income countries. Meanwhile, we're experiencing a boom in large-scale intensive farming operations.

By 2030, antibiotic use in animal agriculture is projected to have risen by:

67%

globally

99%

in Brazil, Russia, India, China, and South Africa.[3]

Antibiotic use in animal agriculture can be broken down into 3 categories:

1 Disease treatment

2 Disease prevention ("prophylaxis")

3 Growth promotion

Using antibiotics to treat disease in animals protects their welfare and prevents unnecessary deaths. However, it is not necessary to use antibiotics to prevent disease in animal groups if no animal is diseased, nor to promote growth in healthy animals.

Intensive farming practices have not only been associated with antimicrobial resistance in animals, humans, and meat **but also with numerous other livestock diseases, e.g. avian influenza H5N1**.[4]

The misuse and overuse of antibiotics in animal agriculture fuels AMR. An increase in resistance would render treatments on animals less effective and bacterial infections would become more severe. It has been estimated that – if AMR continues unchecked – there will be an **11% loss in livestock production by 2050**.[5]

[2] https://www.sciencedaily.com/releases/2019/10/191009132321.htm

[3] https://cddep.org/blog/posts/global_livestock_antibiotic_use_expected_increase_67_2030/

[4] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4426470/

[5] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6929930/

AMR bacteria or AMR-encoding genes can transfer from animals to humans through the environment, food chain, or by direct contact[6]. In China, for example, the use of colistin* as a growth promoter was banned in November 2016 because scientists identified a gene allowing bacteria to survive colistin treatment in animals and humans.

* An antibiotic used as a last resort for multidrug-resistant infections, including pneumonia.

Animal protein producers need to comply with new restrictions on the use of antibiotics

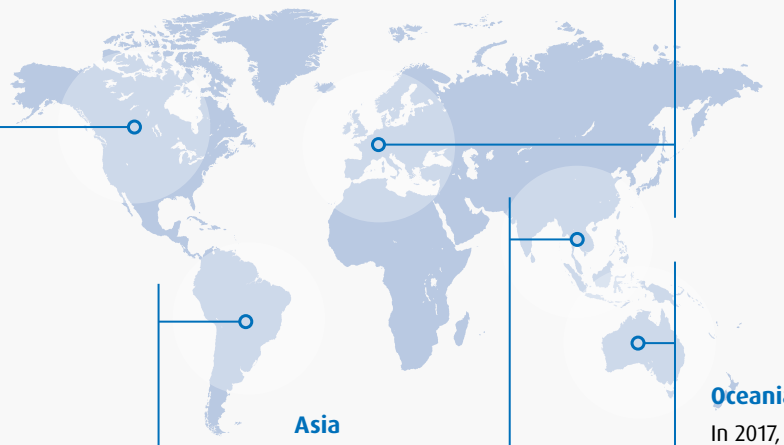
China is one of many countries that has taken action to curb antibiotic use in animal agriculture in recent years. Animal protein producers need to ensure that they comply with the restrictions they are subject to in their countries of operation.

Europe

In 2018, the European Union approved new legislation, which will come into force in 2022, to ban the preventative use of antibiotics in farming.

North America

The US Food and Drug Administration (FDA) requires veterinary oversight of the use of medically important antibiotics* in food animals, and their use has been banned for growth promotion since 2017.



South America

In 2016, Brazil banned the use of colistin for growth promotion.

Asia

South Korea and Thailand have banned the use of antibiotics for growth promotion since 2011 and 2015, respectively.

Oceania

In 2017, a voluntary industry ban was introduced in Australia on the use of medically important antibiotics for growth promotion.

* Antibiotics important for treating disease in humans.

AMR poses opportunities as well as risks

In addition to managing the risks associated with antibiotic use, animal protein producers need to consider the opportunities. Consumer demand for "antibiotic-free"* meat is increasing. In the US, for example, a report by Nielsen[7] revealed that:

c. 29%

Sales of "antibiotic-free" meat grew by c. 29% each year between 2011-15

c. 5%

compared to c. 5% for "conventional" meat.

More recently, a survey conducted by Consumer Reports in the US found that more than one-third of consumers frequently buy meat, poultry, and other foods with a "no antibiotics" claim.[8]

Animal protein producers willing to respond to consumers' concerns about antibiotic use in food animals are therefore arguably better positioned for growth.

* There is no standard definition of "antibiotic-free meat". The label – like the "no antibiotics" label – can mean animals grown without any antibiotics.

[6] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7168130/

[7] https://www.nielsen.com/us/en/insights/article/2016/weighing-consumers-growing-appetite-for-clean-meat-labeling/

[8] https://www.consumerreports.org/overuse-of-antibiotics/what-no-antibiotic-claims-really-mean/

Case studies:

How are major food companies tackling AMR?

1. Food producer – **Tyson Foods**

Tyson Foods is one of the largest animal protein producers in the world. It therefore wields considerable influence. We engaged the company in 2019 on its approach to antimicrobial stewardship. Discover our key findings:

- Tyson Food's responsible antibiotic use practices rely on preventative strategies, e.g. sanitation and vaccination programmes
- It is a founding member of the International Consortium for Antimicrobial Stewardship in Agriculture (ICASA) to advance research on antimicrobial stewardship in animal agriculture

Tyson Food's antibiotic use practices for chicken, cattle and hogs

Chicken	Cattle and hogs
• Progress in eliminating the use of medically important antibiotics • Use of antibiotic alternatives, e.g. probiotics and essential oils • Veterinary oversight of antibiotic use • Tracking of antibiotic use • World's largest producer of No Antibiotics Ever chicken	• The first US protein company to license Progressive Beef* – operators certified in the programme follow best practices for responsible antibiotic use • Providing funding to accelerate research into disease prevention and antibiotic alternatives • Working with industry and trade groups to better understand antibiotic use on the farms of independent cattle and hog suppliers • Marketing of No Antibiotics Ever beef and pork under the Open Prairie® brand

We commend these initiatives, and encouraged Tyson Foods to continue to adopt leading antibiotic stewardship practices, as well as to play an active role in collaborative initiatives promoting responsible antibiotic use. In time, we would welcome greater transparency on antibiotic use in different species.

Our engagement with Tyson Foods and other major food companies revealed that beef production is falling behind chicken production in terms of responsible antibiotic use. This is largely due to the complex nature of beef supply chains – measures to reduce antibiotic use are urgently needed.

*Progressive Beef focuses on 3 key pillars: cattle care, food safety and sustainability. Compliance is confirmed by a third-party auditor annually.

Antibiotic use in cattle

Cattle may be bred in one location but later transported to a feedlot to grow ahead of slaughter – antibiotics may be given to cattle at any stage. In contrast, one entity is usually responsible for a chicken from egg to slaughter.

2. Restaurant chain – **McDonald's**

McDonald's, one of the world's largest restaurant companies, is a leader on responsible antibiotic use. We think that the company's ranking of 8/20 among food purchasers in FAIRR's 2019 benchmark from the Collaborative Engagement on Antibiotics Overuse reflects McDonald's strong commitment to addressing AMR.

In 2018, McDonald's took the bold step of announcing an antibiotics policy on beef, which is applicable to its top 10 beef sourcing markets, representing more than 85% of its global beef supply. This policy builds on the positive progress the company has made in recent years, including announcing a Vision for Antimicrobial Stewardship in 2015 and an antibiotics policy for chicken in markets around the world in 2017. This year, country-specific targets will be established to reduce the use of medically important antibiotics in key beef sourcing markets, and from 2022, progress will be reported against antibiotic reduction targets.[9]

In our dialogue with McDonald's, we learned that the company is also taking steps to investigate antibiotic use in pork production, another fragmented industry which is a large consumer of antibiotics. We strongly encouraged the company to be as transparent as possible on its initiatives to address AMR – its ambitious, species-specific approach will hopefully spur other large restaurant companies to further develop their policies on responsible antibiotic use.

Disclosure on antibiotic use

It is highly significant that McDonald's is going to increase transparency on antibiotic use by reporting progress against targets because disclosure on actual usage is still uncommon. However, there is a small but growing number of companies bringing about change. Hormel Foods* is one example: it has committed to publish a report in 2021 on antibiotic use at some farms in its supply chain.

In our view, the group of companies standing out with regard to disclosure is UK supermarket chains. In 2017, Asda, Marks & Spencer and Waitrose were the first British supermarkets to publish information about antibiotic use in their supply chains, and a number of their peers, including Tesco, have followed suit.

*Hormel Foods, headquartered in the US, is a major producer of prepared meat and food products.

McDonald's believes antibiotic resistance is a critical public health issue, and we take seriously our unique position to use our scale for good to continue to address this challenge. We are excited to partner with our beef supply chain around the world to accelerate the responsible use of antibiotics, whilst continuing to look after the health and welfare of those animals in our supply chain.[10]

Keith Kenny, Global Vice President, Sustainability, McDonald's

[9] https://news.mcdonalds.com/static-files/65fa9258-5ac6-437f-b738-7891b13c1c9c

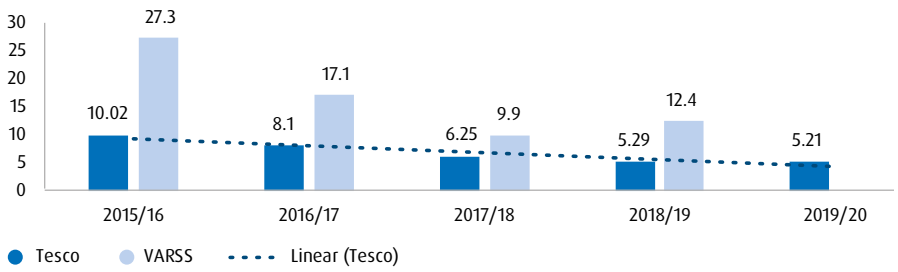
[10] https://news.mcdonalds.com/stories/using-our-scale-for-good/antibiotic-policy-beef-2018

3. Supermarket chain – **Tesco**

It is very positive that Tesco has made antibiotic usage and records a key feature of its farm audit programme, facilitating the evaluation of absolute usage and the identification of trends over time. All supermarket chains would ideally follow the same approach, although we recognise that – as Sainsbury's pointed out to us – we should avoid a race towards "antibiotic free" claims, which could compromise animal welfare because the use of antibiotics to treat disease may be avoided.

The graph below shows how antibiotic use across Tesco's broiler chicken supply chains has decreased in recent years[11]:

Antibiotic Use (mg/kg) across Tesco Broiler Supply Chains (all) vs reported VARSS Data



Source: Tesco Antibiotic Use Commitments, 2019/20 Report
VARSS = Veterinary Antimicrobial Resistance and Sales Surveillance. The VARSS values are industry reference values.

"At Tesco we recognise the importance of responsible use of antibiotics, and have outlined eight on-going commitments to help reduce their use in UK agriculture. These include restricting the use of the highest priority, critically important antibiotics for human health and ensuring there is no unauthorised or routine prophylactic use of antibiotics. We know how important transparency is in this area, and we continue to embed antibiotic reporting across our supply chains. We will be increasing our focus on ensuring antibiotics are only used where absolutely necessary, through the continued implementation of preventative disease programmes and an increase in vaccinations.

Sarah Bradbury, Group Quality Director, Tesco

[11] https://www.tescoplc.com/media/756314/antibiotic-update-2019_20.pdf

Key takeaways from food companies

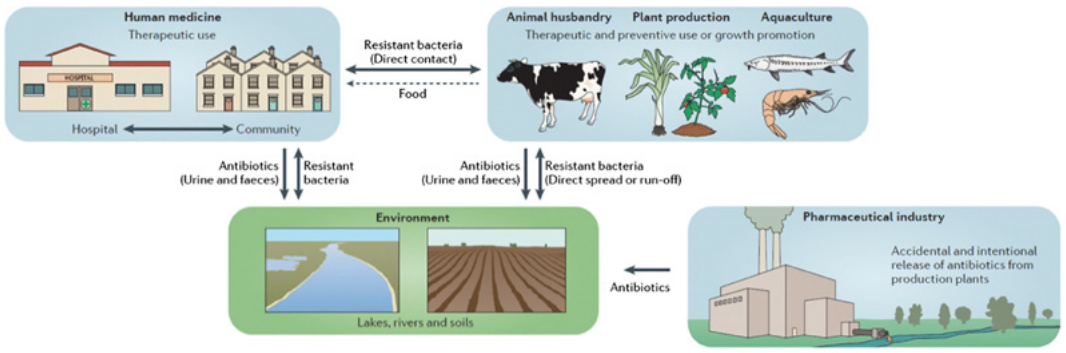
Tyson Foods, McDonald's and Tesco – key players in their respective industries in the food sector – are stepping up to ensure that antibiotics are used more responsibly. The focal points they have in common would ideally be considered standard in the food sector:

- Antibiotic policies
- Species-specific approaches
- Collaboration to advance thinking on antibiotic stewardship
- Antibiotic use monitoring
- Veterinary oversight of antibiotic use
- Use of antibiotic alternatives
- Transparency on progress on tackling AMR

Food and pharmaceutical companies: the call for coordinated action

Ambitious action by the food sector must be accompanied by ambitious action by the pharmaceutical sector.

The integrated ecosystem of the transfer and spread of AMR illustrates the critical importance of a "One Health" approach to the problem[12]:



Source: Critical Importance of a One Health Approach to Antimicrobial Resistance, Alison White and James M. Hughes, as at 28 June 2019

"

With root causes in sectors ranging from health, food safety and agriculture to environment and trade, antimicrobial resistance is one of the most complex public health threats the world has faced...Containing and controlling AMR demands coordinated action across diverse sectors and disciplines, with a broad range of stakeholders.[13]

World Health Organisation

[12] https://link.springer.com/article/10.1007/s10393-019-01415-5/figures/1
[13] https://www.who.int/antimicrobial-resistance/publications/Tackling-AMR-multisectoral-coordination-june2018.pdf?ua=1

"The world works best when we work together."

Darryl White, CEO of BMO Financial Group

Why is AMR a highly material issue **for pharmaceutical companies?**

Modern medicine – and by extension the pharmaceutical sector – is heavily reliant on antibiotics.

In addition to treating common bacterial infections, which we are all familiar with, antibiotics have a wide range of important uses, including in:

- Caesarean sections
- Chemotherapy
- Dialysis for chronic kidney disease
- Hip replacements
- Organ transplants

If antibiotics continue to lose their effectiveness, then commonplace medical interventions such as these could become extremely high risk, undoing decades of progress in public health.

Moreover, antibiotic-resistant infections are difficult to treat or untreatable. They are already responsible for **c. 700,000** deaths per year globally[14], and are increasing healthcare costs: hospital costs of treatment for a resistant infection are estimated to be **US$ 10,000-40,000** higher than for an infection caused by non-resistant bacteria.[15] AMR therefore threatens the entire healthcare ecosystem, including hospital operators and health insurers.

Where are the new antibiotics?

As pharmaceutical companies have increased investment in cancer treatments, which often rely on antibiotics to prevent and treat infections in patients, it would be reasonable to assume that investment in antibiotics has also increased. Unfortunately, the opposite is true.

Since 1990,

78%

of major pharmaceutical companies have scaled back or cut antibiotic research due to development challenges.[16]

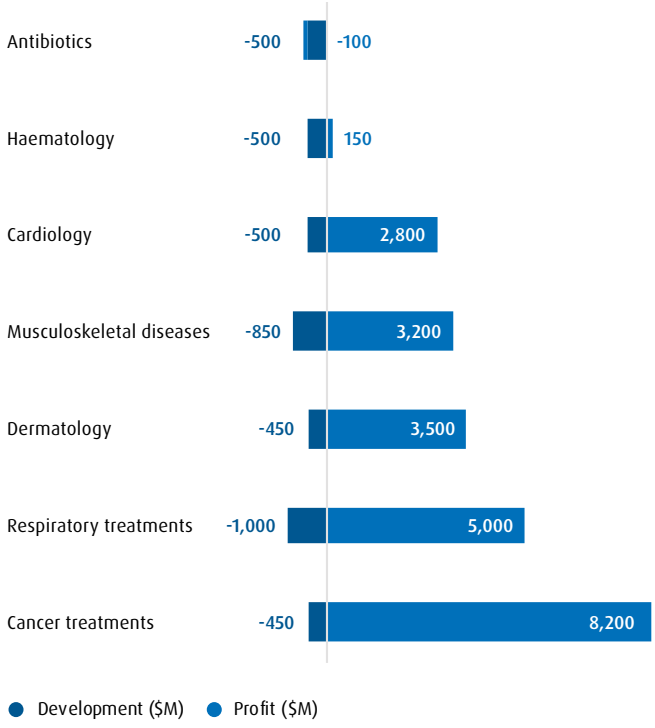
Via our engagement and research, we have sought to understand pharmaceutical companies' perspective on the steep decline in antibiotic research. The fundamental challenges are:

1. **Scientific**: It is extremely difficult to find substances which kill bacteria or prevent them from spreading and are non-toxic to humans. Fewer than 1 in 70 antibiotics reach patients.[17]
2. **Economic**: Antibiotic R&D is expensive and (for various reasons) antibiotics do not command high prices. To compound matters, stewardship measures limit their use in order to preserve their efficacy.

[14] https://amr-review.org/
[15] https://www.oecd.org/els/health-systems/Antimicrobial-Resistance-in-G7-Countries-and-Beyond.pdf
[16] https://www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf
[17] https://wellcome.org/what-we-do/our-work/drug-resistant-infections/its-time-fix-broken-antibiotics-market

The graphic below shows the profitability of different disease treatments (millions of dollars), 2014-16. The key conclusion is that antibiotics are not an economically viable investment.

Profitability of different disease treatments ($million), 2014-2016



Source: https://wellcome.org/what-we-do/our-work/drug-resistant-infections/its-time-fix-broken-antibiotics-market

Rescuing antibiotic R&D

In order to fix the broken market and rescue the antibiotic pipeline, both push and pull incentives are needed.

Push incentives for early R&D are being provided by organisations like CARB-X, a global non-profit partnership dedicated to accelerating antibacterial research, and BARDA, The Biomedical Advanced Research and Development Authority – a US Department of Health and Human Services office. It is a funding partner of CARB-X.

AMR Action Fund

In July 2020, a major breakthrough was the launch of the **AMR Action Fund**, designed by the pharmaceutical sector in collaboration with the WHO, European Investment Bank (EIB) and the Wellcome Trust.[18] This is a push incentive to help candidates in the pipeline through the challenging later stages of drug development. Over 20 major pharmaceutical companies, including **Johnson & Johnson** and **Pfizer**, are contributing **c. $1 billion** to the Fund, which aims to bring **2-4 antibiotics** to market by 2030.

[18] https://amractionfund.com/

Pull incentives are still a "work in progress", and include:

- Market entry rewards – large payments (c. $1 billion) could be given to the successful developer of a new antibiotic
- Changing how pharmaceutical companies are paid for access to antibiotics

A Netflix-style subscription model

In June 2020, the UK launched its "subscription" style payment model for antibiotics[19], with the first two drugs to be selected and evaluated next year. Pharmaceutical companies will be paid upfront for their products based on their usefulness to the NHS, rather than the amount of product used.

Reward is being delinked from volumes sold.

R&D engagement next steps

Since we began our engagement programme on AMR in 2019, there have been a number of developments which should – over the medium-term – help to reinvigorate antibiotic R&D. We will monitor the impact of the different push and pull incentives. We will also continue to encourage the major pharmaceutical companies still involved in antibiotic R&D to not abandon investment in this area, and to be transparent on collaboration to overcome the various barriers to progress.

Responsible manufacturing & stewardship

For pharmaceutical companies manufacturing antibiotics, regardless of whether or not they are involved in antibiotic R&D, responsible manufacturing and product stewardship are key to addressing AMR. In our engagement, we used the relevant metrics in the Access to Medicine Foundation's Antimicrobial Resistance Benchmark to ask targeted questions.

Antimicrobial resistance benchmark 2020 – relevant metrics

Responsible manufacturing	Stewardship
Environmental risk-management strategy	Education stewardship activities
Disclosure on environmental risk management	Appropriate promotional practices
Manufacturing high-quality antibacterials	Stewardship-orientated packaging adaptions
	Antimicrobial surveillance

Source: Access to Medicine Foundation, as at 14 Feb 2019

[19] https://www.gov.uk/government/news/development-of-new-antibiotics-encouraged-with-new-pharmaceutical-payment-system

We will continue to encourage the major pharmaceutical companies still involved in antibiotic R&D to continue to invest in this area, and to be transparent on collaboration to overcome the various barriers to progress.

Case studies:

How are major pharmaceutical companies tackling AMR?

Responsible manufacturing – **Shionogi**

Shionogi, a Japanese pharmaceutical company, has been successfully developing antimicrobials for more than 60 years. The company is a member of the **AMR Industry Alliance***, which has four commitment areas, including "Manufacturing & The Environment".

If discharges from antibiotic manufacturing are not well controlled, the result can be high levels of active residues of antibiotics and resistant bacteria in the waters, soils, and sediments around antibiotic factories, creating hotspots of AMR. [20]

In September 2018, the AMR Industry Alliance's Manufacturing Working Group, which Shionogi is a member of, published an agreed set of science-driven, risk-based discharge targets (**Predicted No-Effect Concentrations****) for companies and suppliers involved in antibiotic manufacturing.

How is Shionogi using PNECs?

- Discharge limits set for all antibacterials manufactured at its own sites based on PNECs
- Third-party suppliers of antibacterial Active Pharmaceutical Ingredients (APIs) and drug products are expected to adhere to the discharge limits set by Shionogi
  - Suppliers based in Japan have been audited and corrective actions requested
  - Shionogi plans to audit overseas suppliers

Shionogi's actions to reduce the potential environmental risks from antibiotic manufacturing are commendable – the company is taking responsibility for its own manufacturing and supply chains to minimise antibiotic pollution. We called for greater transparency as the company continues to enhance its approach to monitoring and analysing discharges from antibiotic manufacturing.

* One of the largest private sector coalitions set up to provide sustainable solutions to curb AMR.

** The concentration of a substance in any environment below which adverse effects will most likely not occur during long-term or short-term exposure.

[20] https://www.amrindustryalliance.org/wp-content/uploads/2020/01/AMR-2020-Progress-Report.pdf

Stewardship – **GSK**

GSK, one of the world's largest pharmaceutical companies, is committed to R&D in infectious diseases. The company has **27** projects targeting bacterial pathogens: 15 vaccines and 12 medicine projects. GSK ranked **first** in the **Access to Medicine Foundation's 2018 and 2020 Antimicrobial Resistance Benchmarks**, scoring highly in all areas, including stewardship. GSK and its peers can influence stewardship by implementing initiatives to promote and monitor the appropriate use of antibiotics, thereby helping to preserve their efficacy.

The following examples illuminate GSK's approach to stewardship:

- Data from the **Survey on Antibiotic Resistance (SOAR)** is included in marketing materials for select antibiotics to bring attention to AMR
- Global surveillance studies will be conducted for new antibiotics to identify resistance patterns
- Incentives for sales agents are partly decoupled from sales volumes to mitigate the risk of inappropriate prescribing
- Product packaging adaptations to communicate appropriate use to patients, taking into account different languages and literacy levels

> Pharmaceutical companies' efforts to meaningfully contribute to the war against AMR must go hand-in-hand with solutions to reduce the need for antibiotics in the first place.

SOAR explained

GSK collects and identifies the pathogens causing the most common community-acquired respiratory tract infections and tests them against a wide range of antibiotics. The data on country-specific resistance levels are shared with public health stakeholders and healthcare professionals.

Our in-depth dialogue with GSK reinforced our view that the company is thinking innovatively about stewardship globally. We concluded that antibiotic stewardship strategies must be underpinned by strong surveillance; sales compensation to discourage inappropriate prescribing; and initiatives to raise awareness of the risks of abusing antibiotics.

Cutting antibiotic consumption is key

Although pharmaceutical companies can meaningfully contribute to the war against AMR by funding antibiotic R&D and implementing leading responsible manufacturing and stewardship practices, it is clear to us that their efforts have to go hand-in-hand with solutions to reduce the need for antibiotics in the first place, including robust hygiene practices, vaccines against infectious diseases, and diagnostic tools, which help to avoid the inappropriate use of antibiotics to treat viral diseases. Diagnostics tests to distinguish between bacterial infections and viral infections are rapidly developing, and in 2021 our engagement will encompass companies active in this space, including **Becton Dickinson**.

Each year, there are

47 million

unnecessary antibiotic prescriptions written in US doctors' offices and emergency departments. Most of these unnecessary prescriptions are for respiratory conditions commonly caused by viruses, including common colds[21].

[21] https://www.cdc.gov/antibiotic-use/stewardship-report/outpatient.html

Conclusion

This Viewpoint scratches the surface of how food and pharmaceutical companies are overcoming the multi-faceted challenges posed by AMR. Our main conclusion is that **progress is accelerating, but we need all companies for which AMR is a material business risk to work towards implementing best practices.**

We recognise that best practices will evolve over time as scientific knowledge of AMR grows and data collection efforts ramp up. In the meantime, transparency about measures to tackle AMR and – for food companies – antibiotic usage is absolutely key. Both the Access to Medicine Foundation and FAIRR play an important role in this regard: their in-depth research into antibiotics is only possible if companies disclose relevant information.

As investors, we need to collectively use this information to enhance our engagement with food and pharmaceutical companies. At BMO GAM, we will continue to commend leading practices and encourage progress in areas where there is scope for improvement.

If governments, companies, investors and civil society succeed in continuing to make incremental progress, we can keep antibiotics working, saving countless human and animal lives.

AMR engagement programme: Next steps

2019 Ongoing engagement

- Animal protein producers
- Animal protein purchasers
- Pharmaceutical companies

2020 Ongoing engagement

- Animal health companies

2021

- Diagnostics companies – tests to distinguish between bacterial and viral infections
- Water utility companies – purifying wastewater to remove antibiotics

Responsible Investment – a glossary of terms

Its wide-ranging nature means that responsible investment involves a host of associated language and jargon. Here we explain some of the most commonly used terms.

Active ownership

Discharging responsibilities as investors and owners in a company through engagement and voting to influence the management of environmental, social and governance (ESG) issues.

Stewardship

The responsible allocation, management and oversight of capital to create long-term value for clients and beneficiaries leading to sustainable benefits for the economy, the environment and society.*

Environmental, Social and Governance (ESG)

A framework that breaks the broad concept of sustainability down into these 3 key issues.

Engagement

Entering dialogue with companies after investment, to support and encourage positive change in the management of key ESG issues.

Proxy voting

Exercising the right to vote on resolutions at company shareholder meetings. It compliments engagement as a key tool for influencing change.

Sustainable Development Goals (SDGs)

The 17 goals set by the United Nations in 2015 are a global framework for achieving a better and more sustainable future. They address the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity and peace and justice. The UN is targeting completion of all 17 interconnecting goals by 2030.

Get to know the author

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Catherine joined the Responsible Investment team in 2018, and currently covers engagement on public health issues. She also leads work on BMO GAM's Responsible product range.

Outside of work, Catherine enjoys listening to podcasts about science and history, and hiking in the Alps. She speaks German and Italian because she studied both languages at university.

* https://www.frc.org.uk/getattachment/5aae591d-d9d3-4cf4-814a-d14e156a1d87/Stewardship Code_Final2.pdf, p. 4. The Investment Association reserves the right to review its alignment with the FRC definition at any time.

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