Accelerating action on AMR

Antimicrobial resistance (AMR) amplifies the threat of infectious diseases by reducing our ability to treat them effectively. With the UN seeking accelerated action on this systemic risk, Ming Yang and Michael Yamoah explain what this means for investors and companies.

Setting the scene

Antimicrobial resistance (AMR) occurs when bacteria, viruses or fungi mutate, leading to persistent infections, contagion and more severe illness.[1] Over time, bacteria can develop a resistance to antibiotics, making these drugs less effective or ineffective. AMR can increase the risk of medical procedures, leading to prolonged hospital stays, higher healthcare costs, and a loss of economic productivity, affecting the long-term value of healthcare companies.

In response, public policies are limiting the use of antibiotics for human and animal use, affecting the practices and long-term profitability of different pharmaceutical and food-related companies. EOS's engagement is focused on topics that in our view will help to enhance and protect the long-term value of each affected company.

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AMR is a critical global public health concern, but attempts to contain it have fallen short, partly due to weak incentives for pharmaceutical companies to develop new antibiotics, and the overuse of antibiotics in humans and animals. At a UN General Assembly High-Level Meeting in September 2024, global leaders reviewed the progress made on AMR and discussed ways to accelerate efforts to combat this issue.

The meeting resulted in the adoption of an extended Political Declaration. Key commitments included reducing the human deaths associated with AMR by 10% by 2030, securing sustainable financing for national action plans on AMR, developing alternative treatments such as vaccines, and promoting responsible use in animal health.[2]

The High-Level Meeting also emphasised the need for cross-national and cross-industry collaboration in combatting AMR. This presents a pivotal opportunity for governments, investors, and companies to reassess their current practices and strategically plan how they can help to achieve the commitments adopted during the meeting. This collaborative approach is essential for driving meaningful progress.

[1] WHO: Antimicrobial resistance
[2] World leaders commit to decisive action on antimicrobial resistance

A complex risk

Why is AMR so difficult to address? There are several complex factors at play, each of which requires co-ordinated effort and novel solutions to overcome.

- **Overuse, underuse and inappropriate prescriptions:** Antibiotics are often overused or inappropriately used in many countries, particularly in developed markets. They are frequently prescribed for conditions where they are ineffective, such as viral infections like influenza. Antibiotics are also widely used in agriculture - not only to treat and prevent diseases in animals, but also to promote growth by improving feed conversion efficiency. In developing countries, limited diagnostic facilities and a lack of access to the appropriate antibiotics often result in sub-optimal prescribing practices.
- **Bacteria versus antibiotics:** Antibiotics are the primary tool used to combat bacterial infections. However, over time bacteria can develop a resistance to antibiotics through random mutations. Increased antibiotic use leads to a higher risk of resistance, which can be mitigated by avoiding unnecessary consumption. Despite this, new antibiotics are continually needed as bacteria naturally mutate and develop resistance. This creates a dual challenge: reducing antibiotic use to slow the development of resistance while creating new antibiotics, as existing ones lose their effectiveness.
- **The market failure:** The World Health Organization (WHO) classifies antibiotics into three categories based on their importance and appropriate use: Access, Watch, and Reserve.[3] The Reserve group includes the most critical antibiotics - those considered the last line of defence against multi-drug-resistant infections. However, these vital drugs face significant market challenges. High production costs, uncertain future revenues, and the unknown duration of effectiveness, due to their restricted and cautious use, discourage pharmaceutical companies from investing in their development. As a result, many companies prioritise more commercially viable treatments, leaving a critical gap in the antibiotic pipeline.

  Funding challenges throughout drug development have led many companies to sell their antibiotics divisions. By the end of 2018, only two of the 45 new antibiotic candidates in US clinical trials were from major pharmaceutical companies: GSK's gepotidacin[4] and Merck's beta-lactam antibiotics.[5] In 2024, antibiotics accounted for only three of the 50 new drugs approved by the US Food and Drug Administration (FDA), highlighting the lack of investment in this area.[6]
- **Uncontrolled infection:** The boundary between a controllable infection and a runaway infection is not clearly defined. Current medical practice relies on imprecise indicators while more accurate diagnostics remain underused. The impact of AMR is often indirect and difficult to quantify.

The impact on long-term value

Pharmaceutical companies

Traditional antibiotics development has faced diminishing returns due to conservation stewardship, meaning that valuable new antibiotics are held in reserve to prevent resistance, limiting sales volumes.[7] This sometimes creates a paradoxical situation whereby successful products generate less revenue despite their high development costs. It highlights the challenges and unattractiveness of investing in antibiotics. Companies also face uncertain returns due to the expected limited pricing power for any new antibiotics, given that these would still need to compete with existing antibiotics.

Healthcare providers and insurers

The financial performance of hospitals, insurers and healthcare real estate investment trusts (REITs) is already being affected by the increased costs for treating resistant infections, longer hospital stays and higher mortality rates. Additionally, insurers are facing a surge in claims due to extended treatment durations, the use of isolation rooms, and therapies that exceed standard care protocols. The financial impact for healthcare providers manifests in higher operational expenditures without proportionate reimbursement increases, creating margin pressure, with resistant infections increasing costs per patient by 30-53% compared with susceptible infections.[8]

Protein producers and food retailers

Food and agricultural businesses face productivity losses due to untreated or untreatable diseases, poor animal husbandry, and inadequate hygiene. In intensive farming systems, antibiotics are frequently used at scale to prevent disease outbreaks and accelerate growth. However, this routine use fosters the emergence of AMR, creating a serious threat to animal and human health through the transfer of resistant pathogens.

[3] The WHO AWaRe (Access, Watch, Reserve) antibiotic book - Infographics
[4] GSK starts a phase III clinical programme for a potential first-in-class antibiotic, gepotidacin
[5] Antibiotics: past, present and future
[6] 50 new drugs received FDA approval in 2024
[7] Antibiotic reimbursement in a model delinked from sales: a benchmark-based worldwide approach - ScienceDirect
[8] Economic burden of antibiotic resistance in ESKAPE organisms: a systematic review - PubMed

In response, the US FDA has implemented policies that prohibit the use of medically important antibiotics for growth promotion in food-producing animals.[9] Similarly, the European Union's Farm to Fork Strategy has set an ambitious target to reduce overall antibiotic sales for animal use by 50% by 2030, reinforcing the global shift towards more sustainable and responsible antibiotic practices in agriculture.[10] A shift in consumer preferences away from antibiotic-treated products could also impose additional financial pressures on producers and supply chains.

Where animal rearing systems and practices are employed that depend on high levels of antibiotics use, producers face the challenge of rising AMR levels. As antibiotics become increasingly ineffective, production cycles will lengthen, and higher costs will be incurred for preventative measures.[11] This directly impacts inventory turnover and working capital needs.

Unpriced systemic risk

AMR creates an unpriced systemic risk across investment portfolios by undermining the effectiveness of medical infrastructure, as well as agricultural yields. This under-appreciated risk could materially affect long-term asset values and investment performance at individual companies, particularly in the healthcare and food industries, and in the wider economy.

As resistance grows, so too does the potential for widespread disruption across global supply chains. Poor corporate profitability threatens long-term investment returns - AMR is projected to contribute to financial losses of US$3-4bn over the next decade,[12] with economic impacts potentially exceeding 5% of GDP in low and middle-income countries (LMICs) by 2050.[13] Despite these substantial risks, current valuation models rarely account for AMR-related factors, leaving portfolios exposed to underappreciated systemic vulnerabilities.

Our stewardship approach

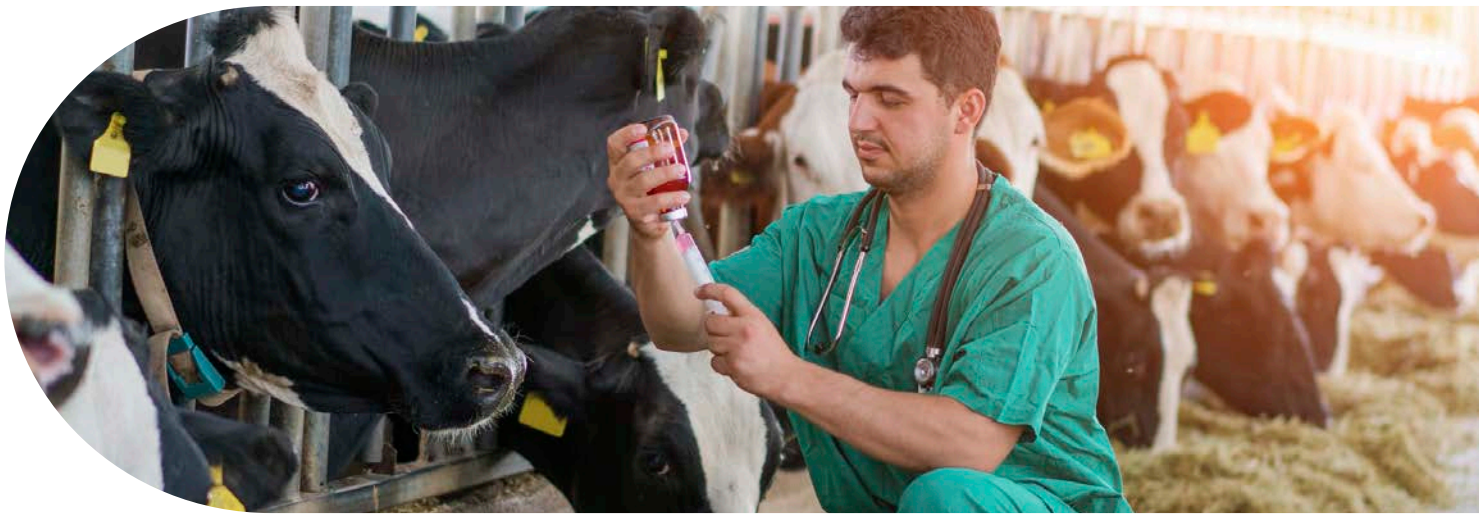
Our stewardship approach combines public policy engagement and multi-sector corporate engagement. The market failure associated with AMR creates a vicious circle, exacerbating systemic risks. To transform this into a virtuous circle, public-private and cross-sectoral partnerships are crucial. Investors should therefore engage with policymakers directly on three key areas in order to maximise long-term value.

Addressing the human use of antibiotics

- Support evidence-based regulation and promote global standards: consult on or advocate for stricter controls on antibiotic prescriptions, and adopt WHO's Water, Sanitation, and Hygiene (WASH) classifications and antimicrobial guidelines.
- Invest in training and education and strengthen surveillance systems: train healthcare professionals to reduce the overuse and misuse of antibiotics through improved prescribing practices, and monitor antibiotic use and resistance patterns, enabling data-driven policy decisions and early detection of outbreaks.
- Ensure appropriate access by integrating antibiotics into national and international access programmes, helping to guarantee the availability of effective treatments across regions.
- Implement robust infection prevention and control (IPC) measures at all levels of the healthcare system to reduce the need for antibiotics in the first place.

Regulating the use of antibiotics in animals and farms

- Restrict non-therapeutic antibiotic use by phasing out the use of medically important antibiotics for growth promotion and routine disease prevention in livestock and aquaculture.



[9] FDA Policies: Antimicrobial Drugs for Animals | FDA
[10] Combatting antimicrobial resistance on farms thanks to CAP support - European Commission
[11] Economic evaluation of antimicrobial use practices in animal agriculture: a case of poultry farming | JAC-Antimicrobial Resistance | Oxford Academic
[12] Antimicrobial resistance: Impacts, challenges, and future prospects
[13] By 2050, drug-resistant infections could cause global economic damage on par with 2008 financial crisis

- Mandate veterinary oversight to ensure antibiotics are prescribed and administered only when medically necessary, based on proper diagnosis and treatment protocols.
- Promote good animal husbandry and biosecurity practices to reduce reliance on antibiotics by improving animal health through better nutrition, housing, and hygiene.
- Enhance surveillance and reporting systems to monitor antibiotic use and resistance trends in farmed animals, enabling timely interventions and informed policymaking.

Incentivising pharmaceutical innovations

- Create market incentives such as market entry rewards or advanced purchase commitments to make antibiotic development financially viable for pharmaceutical companies.
- Support early-stage research through grants, public-private partnerships, and tax incentives to reduce the cost and risk of R&D.
- Streamline regulatory pathways by simplifying and harmonising approval processes for novel antimicrobials, especially those targeting resistant pathogens.

Companies should also be encouraged to engage in the policymaking process by participating in public consultations on proposed AMR-related policies where relevant, or joining cross-sector and international collaborative initiatives for research and innovation in new antimicrobials. We encourage companies to disclose their lobbying and public policy engagement activities, including their expenditure, and provide annual updates on their progress and any challenges faced.

Antimicrobial resistance creates an unpriced systemic risk across investment portfolios by undermining the effectiveness of medical infrastructure, as well as agricultural yields.

Engaging with companies

The following are areas of engagement applied to companies across different sectors on a tailored, company-specific basis, that are relevant to driving long-term value at each company.

Pharmaceutical companies

Research and development (R&D)

- Strengthen the antibiotics pipeline: review the opportunity to support the discovery and development of novel antimicrobial agents targeting resistant pathogens, where commercially viable.
- Diversify innovation efforts: review the opportunity to invest in alternative therapies as well as preventative vaccines, which can offer more sustainable and resilient revenue models compared with traditional, standalone antibiotics.

Strategies for improved access

- Integrate antibiotics availability into corporate access strategies, particularly in LMICs, where access gaps are most severe.
- Establish clear, measurable access metrics to track progress, ensure accountability, and demonstrate impact, such as availability in national formularies, affordability, and supply chain reliability.

Risk analysis to current pipeline

- Assess the impact of AMR on infectious disease portfolios, including treatments for influenza, malaria, HIV/AIDS, and other high-burden conditions. As resistance trends evolve, the efficacy and commercial viability of these therapies may be compromised.
- Encourage scenario-based risk assessments, such as stress-testing the value of antimicrobial assets under accelerated resistance conditions, to evaluate financial resilience and preparedness.
- Transparency: enhance investor confidence through disclosure of proactive risk management, demonstrating that portfolios are resilient and adaptable in the face of emerging resistance threats.

Waste and pollution management

- Responsible management of waste and wastewater from antibiotic production to prevent environmental contamination, to avoid fines and reputational risks.
- Third-party certifications and standards: consider the BSI Kitemark for Minimised Risk of AMR,[14] to demonstrate compliance and accountability in environmental stewardship.
- Integrate environmental risk mitigation into broader sustainability and ESG strategies, reinforcing a company's commitment to public health and long-term value creation.

[14] BSI Kitemark for AMR: Responsible Antibiotic Manufacturing | BSI

Healthcare providers

Responsible prescribing and diagnostic practices

- Prescription monitoring systems: consider the merits of systems that ensure antimicrobial use is clinically appropriate and aligned with patient care standards.
- Rapid diagnostic technologies: consider deployment of technologies to reduce unnecessary empiric antibiotic use.

Workforce education

- Training and education: consider further training for clinical staff on antimicrobial stewardship principles and evidence-based prescribing.
- Standardise prescribing protocols: consider the merits of further clinical guidelines in the context of local resistance data to ensure consistent, effective treatment.

Financial impact assessment

- Resistant infections tracking: consider tracking the financial impacts of hospital stay duration, cost per case, and reimbursement variations to help quantify the burden of AMR and inform operational strategies.

Protein producers and food retailers

Responsible use of antibiotics across the value chain

- Antibiotic stewardship policies: develop appropriate policies that prioritise targeted, therapeutic use only, and which consider prohibitions on routine or prophylactic antibiotic use.
- Reduction targets for antibiotic use: consider setting measurable and time-bound targets with transparent tracking and publicly disclosing usage data by type and volume.
- Engage supply chains by requiring food retailers to work closely with producers, offering educational resources and technical support to ensure compliance at the farm level.

Transparency and disclosure

- Product segmentation strategies: consider the merits of developing and disclosing strategies to differentiate the animals raised without routine antibiotics, including margin analysis by segment.
- Reporting antibiotic use and production economics: consider reporting on areas such as cost structures between conventional and alternative systems. This transparency supports informed consumer choice and builds investor confidence in the sustainability of supply chains.

In our interactions with companies, we aim to elevate discussions on AMR to the board level and advocate for robust governance of these risks.

Animal welfare and preventative care

- High-welfare husbandry practices: consider the merits of practices such as adequate space, rest, quality feed, and clean water, to reduce disease risk and a reliance on antibiotics.
- Veterinary oversight: develop practices for antibiotic administration, with strict adherence to necessity and dosage guidelines.
- Environmental risk management: monitor and treat wastewater and manure to prevent antimicrobial discharge into ecosystems. Adoption of certified waste treatment standards demonstrates environmental responsibility and helps mitigate AMR risks.

Other sectors

Over the long term, other sectors will face challenges related to AMR. While the current focus should be on the prioritised sectors above, it is crucial to monitor these additional sectors closely to mitigate future risks. For example, health insurers may need to account for AMR-related claims by reassessing coverage risks and adjusting pricing. Water utilities companies should consider focusing on monitoring antibiotic residue discharge and investing in advanced treatment technologies, such as membrane filtration and UV disinfection.

EOS at Federated Hermes Limited has been engaging with companies and policymakers on this issue since 2017. In our interactions with companies, we aim to elevate discussions on AMR to the board level and advocate for robust governance of these risks as we believe this will have a positive effect on each company's financial performance.

In 2020, EOS joined the Investor Action on AMR (IAAMR), a coalition formed by the Access to Medicine Foundation, the FAIRR Initiative, and the UK's Department of Health and Social Care, to mobilise investor efforts to address global AMR. In 2024, EOS signed the IAAMR Public Investor Statement alongside 80 other signatories, urging global leaders and policymakers to renew their efforts, coordinate action, and reaffirm their commitments to combatting AMR at the UN meeting in September of that year.

We also contributed to the World Health Organization's draft guidance on waste and wastewater management in pharmaceutical manufacturing. We recommended mandatory risk assessments at each stage of the production value chain and public disclosure of antibiotic pollution. Increased transparency enables us to gauge whether a company has robust practices in place to manage the risks associated with antibiotic residues entering the environment and the development of AMR.

Additionally, EOS collaborates on AMR engagements through the FAIRR Initiative and works closely with the Access to Medicine Foundation and the AMR Action Fund to explore opportunities for this critical issue.

Case Studies

Adopting the One Health multisectoral approach,15 we engage with agriculture and protein producers, and pharmaceutical companies such as Yum! Brands, Hormel Foods, and Zoetis. We encourage companies to limit their contribution to the spread of AMR by developing viable alternatives to antimicrobial use and assessing the potential business risks associated with high-AMR scenarios. Proactively addressing these risks can unlock commercial opportunities, enhance preparedness for tightening regulations, and reduce long-term operational and compliance costs.

CASE STUDY

Yum! Brands

Yum! Brands faces financially material risks from AMR through its global protein supply chains, especially in poultry and beef. Regulatory efforts to curb antibiotic use in livestock could lead to increased costs and reputational damage if not proactively addressed. Additionally, shifting consumer preferences for antibiotic-free products may impact revenues and brand value.

The company has an opportunity to mitigate this risk by strengthening its antibiotic stewardship policies, enhancing transparency, and expanding antibiotic-free offerings - steps that could support profitability and establish leadership in sustainable food systems.

In 2023, our discussions with the company's sustainability head emphasised the need to reduce antibiotic use in cattle and improve animal welfare. At the 2025 AGM, we recommended support for a shareholder resolution asking the company to comply with WHO guidelines on antimicrobial use throughout its supply chain. We also co-signed a letter to the company on AMR risks as part of the FAIRR collaborative engagement initiative, highlighting the role of restaurants in influencing supply chains and the regulatory risks of inaction.

Over this period, Yum! Brands has committed to eliminating medically important antibiotics in poultry. We continue to engage on its approach to beef where it has committed to a 25% reduction in such use by 2025 for Taco Bell in the US and Canada, which may leave broader supply chains vulnerable.

CASE STUDY

Hormel Foods

Hormel Foods is under increasing scrutiny for its antibiotic use, particularly where practices diverge from WHO guidelines. Shareholders have raised concerns about the financial and public health risks of antimicrobial resistance (AMR), encouraging the company to adopt stricter stewardship aligned with global standards.

While Hormel Foods has made progress through its antibiotic stewardship programme, emphasising management, veterinary oversight, and preventive care, its continued use of medically important antibiotics in some supply chains presents future regulatory risks. By enhancing transparency, aligning with WHO recommendations, and investing in alternative animal health strategies, Hormel can strengthen its supply chain resilience and meet evolving consumer expectations.

Our engagement began in early 2023 with support for a shareholder proposal at its AGM asking the board to adopt WHO guidelines. Later in 2023, we met the company's vice president of animal health and welfare to discuss responsible antibiotic practices and external reporting. We noted the company's elimination of antibiotics for growth promotion and its goal to reduce medically important antibiotics by 10% across all animal protein production.

The company is also working with veterinarians to improve disease diagnosis and manage AMR, especially on non-vertically integrated farms. We continue to engage on the merits of publishing an AMR stewardship policy to formalise its commitments.

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Theme: Natural Resource Stewardship

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