

GSK public policy positions

Combating Antimicrobial Resistance (AMR)

The Issue

The spread of resistance to antibiotics has become a global threat to public health, reducing the options available to healthcare providers to manage life-threatening bacterial infections. As well as managing traditional sources of infection, many modern medical interventions such as chemotherapy, acute cardiac interventions, elective and emergency surgery, transplantation, and care of neonates rely on effective antibiotics.

No new class of antibiotic for Gram negative infections has been approved in recent decades and importantly, despite the high unmet need, the market for new antibiotics remains unattractive for new investment. Three key challengesⁱ in particular have caused many pharmaceutical companies to exit the area and have contributed to a lack of new antibiotics in development:

1. the unique scientific challenges associated with discovering new antibiotics
2. the complexity of antibiotic development and running antibiotic clinical trials
3. the limited economic attractiveness of investing in antibiotic R&D and need for new commercial models

The main contributions that GSK can make to combating antibiotic resistance are to deliver new antibiotics that treat serious drug resistant infections and helping to ensure appropriate use of current and future antibiotic products, including supporting the development of rapid diagnostic tests. We have been continuously undertaking these tasks since the Second World War. However, the growing threat of resistance and the complexities of this area demand a collaborative global response, moving beyond the scientific community and pharmaceutical sector to include policy-makers, healthcare funders and other stakeholders. We welcome current initiatives from several governments, WHO and we support the 10 Final Recommendations from the AMR Reviewⁱⁱ. In January 2016 GSK helped drive the ground-breaking Davos Industry Declarationⁱⁱⁱ. Signed by 100 companies, this Declaration describes industry's contribution to addressing antibiotic resistance and outlines a set of solutions. However, more concrete progress is now needed to build on and consolidate achievements to date.

This paper summarises GSK's ongoing commitment to addressing the global threat from AMR, along with our view on what others need to do to help address the threat.

GSK's Position

1. Preventing infections to reduce society's dependence on antibiotics

- GSK is a world leader in supplying vaccines^{iv} aimed at preventing both bacterial and viral infections, which can thereby result in reduced use of antibiotics. We are also committed to researching and developing new vaccines^v to prevent bacterial infections, including shigellosis; TB; and meningococcal meningitis.
- We are involved in multiple community based projects aimed at the prevention and control of infections, including a partnership with Save the Children to create an antiseptic chlorhexidine gel^{vi} to prevent umbilical cord infections in newborn infants.
- We have committed to not licensing our new antibiotics for agricultural use and to ensuring that all our manufacturing suppliers dispose of antibiotic waste appropriately.

GSK calls on all stakeholders to:

- Encourage widespread implementation of vaccination programmes to prevent bacterial infections and to consider the role of viral vaccination in reducing use of antibiotics.
- Expand programmes to improve basic access to clean water and sanitation in developing countries.
- Invest in cutting edge science, such as reverse vaccinology, to increase the success of vaccine discovery and to validate alternative approaches to prevent bacterial infections.
- Preferentially purchase antibiotics manufactured to high environmental standards.

2. Generating innovative treatments and a vibrant environment for antibiotic R&D.

- GSK is fully committed to the R&D of medicines aimed at treating bacterial infections^{vii}.
- This commitment is via work in three dedicated ‘Discovery Performance Units’ and by pooling our knowledge and experience via multiple public private partnerships (PPPs). GSK was, for example, one of the founding architects of the Innovative Medicines Initiative (IMI) ‘New Drugs For Bad Bugs’^{viii} programme (ND4BB) which is now valued at €700M with 11 pharma partners and >100 academic and public groups. We are also proud of long-term partnerships in the US with the Biomedical Advanced Research and Development Agency [BARDA]^{ix} and the Defence Threat Reduction Agency [DTRA]^x aimed at helping us progress a portfolio of new antibiotics and to pursue their potential as bioterrorism countermeasures.
- We recognise the need to improve the clinical trial process and are supporting the creation of qualified clinical trial networks in the EU, China and around the world.
- We support legislation (eg PATH^{xi}) that reduces regulatory barriers for antibiotics addressing unmet needs and advocating the creation of a globally aligned regulatory environment.

GSK calls on all stakeholders to:

- Ensure sustainable funding for antibiotic R&D PPPs (eg IMI, BARDA and DTRA) and to explore novel concepts such as a Global Innovation Fund to support clinical trial infrastructure and blue sky research that will increase the success and efficiency of antibiotic R&D.
- Support legislation that streamlines the development of antibiotics for high unmet need.
- Establish a mechanism to bring regulatory bodies together to agree on a single aligned global development plan for a specific antibiotic.

3. Creating a sustainable business environment that incentivises appropriate use & investment

- GSK is a vocal advocate for new commercial models^{xii}, favouring a model that separates or “de-links” revenues from the amount of antibiotic that gets used. This model incentivises investment in antibiotic R&D, while enabling global access and reducing the pressure to maximise returns through increasing use of the new medicine.
- We recognise that a single incentive model is unlikely to serve all needs in all countries and are open to a variety of approaches. We are ready to pilot new models with our antibiotics.
- We support the elaboration of economic models for vaccines which account for the value they deliver through reduced use of antibiotics, both in mass vaccination and targeted settings (eg pre-surgical).
- We are providing scientific advice and seed-funding for PPPs^{xiii} and ‘prizes’ aimed at catalysing the development of fast (20 min or less), accurate and cost-effective point-of-care diagnostics that will direct the use of our antibiotics only in patients that need them (appropriate use).
- We are conducting the Survey of Antibiotic Resistance (SOAR)^{xiv} for community acquired respiratory tract infections in the Middle East, Africa, Asia, Pacific, CIS, Latin America and some EU countries to provide country specific resistance levels to public health stakeholders and HCPs, to inform prescribing & guideline development, sharing the data with >11,000 HCPs in the first 8 months of 2016.
- We will conduct global surveillance studies for our new antibiotics to enable appropriate use and support stewardship programmes.
- In countries prohibiting provision of antibiotics without a prescription, we support strict implementation of these laws. Other countries should develop formal channels to ensure appropriate dispensing to patients.
- We have changed how we incentivise our sales representatives globally, so they no longer have individual sales targets for any medicines, including antibiotics. Our new approach helps further ensure the focus is upon appropriate prescribing. All our sales reps are incentivised based on their technical knowledge and quality of service.

GSK calls on all stakeholders to:

- Deliver ‘pilots’ for new antibiotics to be commercialised via de-linked type models.
- Fund novel incentive structures for antibiotics that offer countermeasures for potential bacterial bioterrorist weapons.
- Ensure new diagnostics are integrated into patient care and create a Diagnostic Market Stimulus^{xv} to ensure affordability is not a barrier to the use of diagnostics.
- Create a global awareness campaign to reinforce an understanding of the lifesaving role of antibiotics, their value to our overall healthcare infrastructure and the critical need to use them appropriately.
- Create globally aligned surveillance programs to identify emerging resistance patterns, facilitate adjustments in local prescribing habits and enable the selection of sites for antibiotic clinical studies.

- Encourage the pharmaceutical industry to adopt promotional practices that avoid inappropriate use and promotion of antibiotics.
- Fully engage in National Action Plans to reduce inappropriate use, including clear definition and enforcement of prescription and dispensing regulations.

BACKGROUND

A Global Imperative Antimicrobial Resistance is increasingly recognised as one of the biggest health threats facing mankind. The topic has moved from an academic debate, through health policy-makers to global leaders. The increasing identification of bacteria with readily transferable resistance to the ‘last-line’ antibiotic^{xvi}, colistin, represents a very real potential for a rapidly expanding threat of bacteria untreatable with currently marketed antibiotics.

The AMR Review led by Lord O’Neill has done an excellent job of quantifying this threat and developing a set of 10 recommendations to address it. Findings include a projection of 10 million deaths per year by 2050 due to AMR, more than currently die from cancer, with an equally concerning economic and social cost. We welcome all 10 recommendations, in particular the need for an extensive global public awareness campaign, a Global Innovation Fund to drive further innovation in R&D, the introduction of market entry rewards for innovative new antibiotics, a step-change in surveillance and increased use of both vaccines and diagnostics.

The WHO Resolution of 2015^{xvii} mandating all nations to develop Action Plans to combat AMR by 2017 was another very significant step, as is attention at G7, G20 and the UN

GSK welcomes the commitment from governments around the world to address AMR with serious, sustainable long-term actions. We are committed to working in partnership with governments, public health bodies, healthcare professionals and patients to help society avoid the worst predictions of what AMR could lead to.

Preventing infections and reducing society’s dependence on antibiotics

GSK is:

- A world leader in supplying vaccines aimed at preventing both bacterial and viral infections, which can thereby result in reduced use of antibiotics. To date our Synflorix vaccine has been used to help protect >70M children from pneumococcal pneumonia and Bexsero protects from meningococcal infection. In addition, our vaccines for non-bacterial infections such as flu, rotavirus and malaria avoid disease that can trigger inappropriate use of antibiotics.
- Committed to R&D to discover new vaccines to prevent: shigellosis; TB; and meningococcal meningitis.
- Investing >£7M (to date) in Personal Hygiene and Sanitation Education^{xviii} (PHASE) which has educated >1.5M children in the world’s poorest countries to help prevent infections.
- Working in partnership with Save the Children to create an antiseptic chlorhexidine gel (CHMP positive opinion April 2016) to prevent umbilical cord infections in newborn infants.
- Strengthening healthcare infrastructure by training 40,000 front-line health workers^{xix} and prescribers in 35 least developed countries that have reached 11M patients since 2009.
- Helping to reduce the use of antibiotics by encouraging consumers to treat their cough, cold and flu symptoms with non-prescription medicines, including Otrivin® nasal decongestant, Theraflu® to relieve cold and flu symptoms, and Panadol® to relieve pain. We discover and supply innovative, high quality and affordable consumer healthcare products that help people feel better; and in 2014, we sold 18.5 billion product packs to over one billion consumers globally.

GSK’s commitment to antimicrobial R&D

GSK is:

- Committed to R&D of medicines to treat bacterial infections with three dedicated ‘Discovery Performance Units’ (DPUs). The Antibiotic DPU is dedicated to antibiotic discovery, the TB DPU on the discovery of new medicines for MDR TB and a newly formed Host Defence DPU which is exploring an innovative approach of human targets for managing bacterial infections.
- Actively progressing novel antibiotics for treating MDR Gram negative infections and TB^{xx}, including gepotidacin (Phase 2), a first in class antibiotic with the potential to treat multidrug resistant (MDR) *E.coli*, drug-resistant gonorrhoea, as well as biothreat pathogens.

- Supporting early fundamental science in discovery, GSK co-leads TRANSLOCATION^{xxi} and ENABLE^{xxii} (ND4BB) and supports the science proposed in the PEW Roadmap^{xxiii}.
- Improving the clinical trial process, by supporting the creation of qualified clinical trial networks in EU (COMBACTE^{xxiv}) and working with stakeholders to create networks in China and around the world.
- Committed to helping China tackle antibiotic resistance by the creation of our Institute for Infectious Diseases & Public Health in Beijing^{xxv}. Through PPPs the Institute aims to create surveillance and clinical trial networks and act as a focal point for antibiotic policy development in China.

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- ⁱ The Royal Society Publishing: “Time for a change: addressing R&D and commercialization challenges for antibacterials” <http://rstb.royalsocietypublishing.org/content/370/1670/20140086>
- ⁱⁱ Tackling Drug Resistant Infections Globally: Final Report and Recommendations – Review on Antimicrobial Resistance http://amr-review.org/sites/default/files/160525_Final%20paper_with%20cover.pdf
- ⁱⁱⁱ Davos Industry Declaration <http://amr-review.org/industry-declaration>
- ^{iv} GSK Vaccines Business <http://www.gsk.com/en-gb/about-us/what-we-do/vaccines/>
- ^v GSK Vaccines Product Pipeline <http://www.gsk.com/en-gb/research/what-we-are-working-on/product-pipeline/>
- ^{vi} GSK Antiseptic Chlorhexidine Gel <http://www.gsk.com/en-gb/behind-the-science/access-to-healthcare/giving-mothers-and-babies-a-healthier-start/>
- ^{vii} GSK Antibiotics Research - R&D of medicines aimed at treating bacterial infections <http://www.gsk.com/en-gb/research/what-we-are-working-on/antibiotics-research/>
- ^{viii} Innovative Medicines Initiative - ‘New Drugs For Bad Bugs’ <http://www.nd4bb.eu/>
- ^{ix} Biomedical Advanced Research and Development Agency (BARDA) - GSK signs a multi-year agreement with BARDA to supply the US government with anthrax treatment <http://www.gsk.com/en-gb/media/press-releases/2013/gsk-signs-a-multi-year-agreement-with-barda-to-supply-the-us-government-with-anthrax-treatment/>
- ^x Defence Threat Reduction Agency [DTRA] <http://www.dtra.mil/>
- ^{xi} PATH Summary of the proposed “Protecting Americans from Tax Hikes Act of 2015” <http://www.finance.senate.gov/imo/media/doc/Summary%20of%20the%20Protecting%20Americans%20from%20Tax%20Hikes%20PATH%20Act%20of%202015.pdf>
- ^{xii} The Royal Society for Publishing - Time for a change: addressing R&D and commercialization challenges for antibacterials <http://rstb.royalsocietypublishing.org/content/370/1670/20140086>
- ^{xiii} Longitude Prize launches seed funding Discovery programme to further open up global innovation in developing diagnostic tools to combat AMR <http://www.bivda.co.uk/News/NewsPolicyMedia/tabid/1552/articleType/ArticleView/articleId/1491/Default.asp>
- ^{xiv} Survey of Antibiotic Resistance (SOAR) http://jac.oxfordjournals.org/content/71/suppl_1.toc
- ^{xv} Diagnostic Market Stimulus http://amr-review.org/sites/default/files/Infographic_3_FINAL.pdf
- ^{xvi} The Lancet Infectious Diseases - transferable resistance to the ‘last-line’ antibiotic [http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(15\)00424-7/abstract](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(15)00424-7/abstract)
- ^{xvii} WHO Global action plan on antimicrobial resistance - Resolution of 2015 <http://www.who.int/antimicrobial-resistance/publications/global-action-plan/en/>
- ^{xviii} GSK supporting Personal Hygiene and Sanitation Education <http://www.gsk.com/media/378507/Personal-Hygiene-And-Sanitation-Education-Report-2013.pdf>
- ^{xix} GSK training for front-line health workers <http://www.gsk.com/en-gb/behind-the-science/access-to-healthcare/five-years-40000-health-workers-11-million-people/>
- ^{xx} GSK Innovation - TB <http://www.gsk.com/en-gb/behind-the-science/innovation/tb-or-not-tb/>
- ^{xxi} Innovative Medicines Initiative – TRANSLOCATION <https://www.imi.europa.eu/content/translocation>
- ^{xxii} Innovative Medicines Initiative - ENABLE <https://www.imi.europa.eu/content/enable>
- ^{xxiii} The PEW Charitable Trusts - A Scientific Roadmap for Antibiotic Discovery <http://www.pewtrusts.org/en/research-and-analysis/reports/2016/05/a-scientific-roadmap-for-antibiotic-discovery>
- ^{xxiv} IMI COMBACTE – Combating Bacterial Resistance in Europe <https://www.combacte.com/>
- ^{xxv} GSK Institute for Infectious Diseases and Public Health to partner with Tsinghua University to tackle global public health challenges <http://www.gsk-china.com/en-gb/media/press-releases/2016/gsk-institute-for-infectious-diseases-and-public-health-to-partner-with-tsinghua-university-to-tackle-global-public-health-challenges/>