

A MOMENT TO RESET

Addressing the next pandemic

Antibiotic resistance represents one of the gravest threats to global public health.¹ Antibiotics are becoming less effective due to bacteria naturally evolving to become more resistant to drugs.² By 2050, antibiotic resistance could be responsible for

10 million deaths a year.³

Despite the consequences of antimicrobial resistance (AMR), there is a lack of new antibiotics making it to market and only one new class of antibiotics has been launched in recent decades,⁴ but why is this?



Developing a new antibiotic is a challenge, both scientifically and financially.⁵



Bacteria and other micro-organisms have evolved to avoid attacks by chemicals, such as antibiotics.

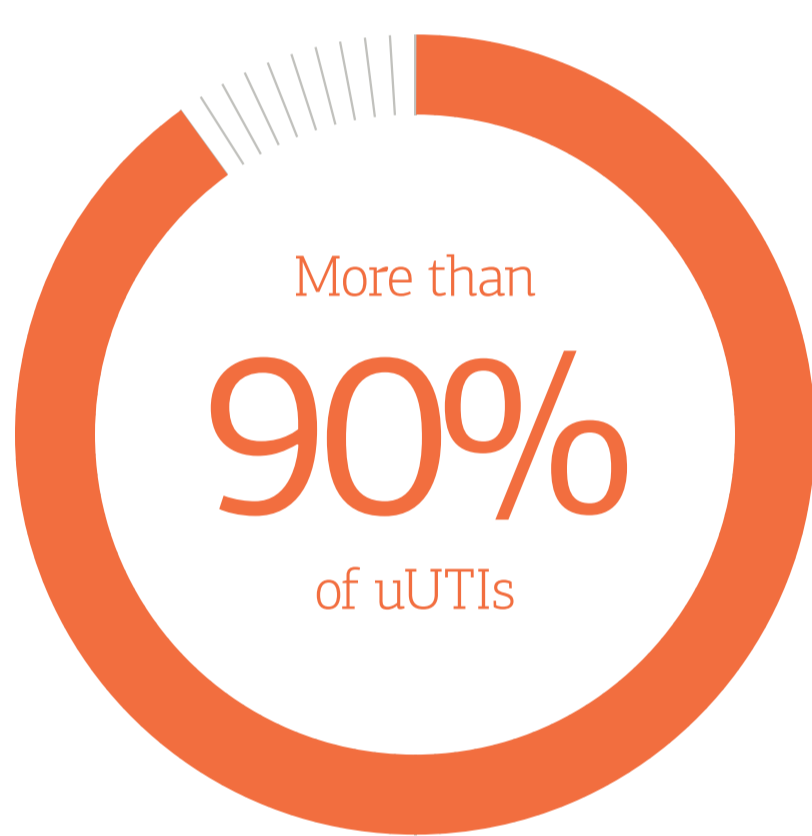
They can double every 20 minutes and rapidly adapt to hostile environments, which creates a need for large doses of antibiotics.^{6,7}



It is therefore very difficult to discover medicines that are both highly effective and sufficiently safe at high doses.⁸

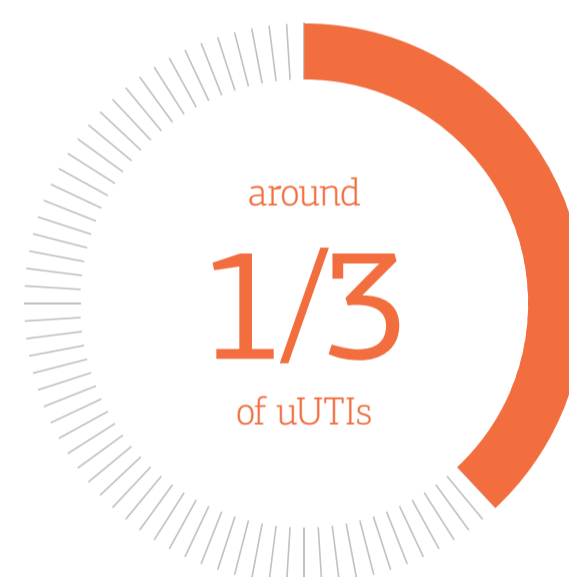
Rising resistance in uncomplicated urinary tract infections

Uncomplicated urinary tract infections (uUTIs) are one of the most common infections in women in the community.⁹



are caused by a bacterium called *Escherichia Coli* (or *E. coli*).¹⁰

The World Health Organization (WHO) has put *E. coli* on a critical list of pathogens responsible for AMR¹¹ and it has been reported that...



are already resistant to certain common antibiotics.¹²



uUTIs can have limitations on women's lives, including discomfort, potential days off work and they can put a strain on intimate relationships.^{9,13}

Our commitment



GSK is one of the few pharmaceutical companies committed to investing in this space and is using its 70 years of expertise to help the fight against bacterial threats.¹⁴



As well as progressing possible new antibiotics, GSK is also investigating vaccines that could help combat AMR.¹⁵

Nobody can outwit AMR alone. There has never been a better time for us to come together and take A Moment to Reset.

References

1. Thomson, P. "Pull" the Science: 2020 Antimicrobial Resistance Benchmark. Available from: <https://www.gsk.com/en-gb/responsibility/improving-health-globally/pull-the-science-2020-antimicrobial-resistance-benchmark/> [Accessed October 2021]
2. Stat. My company is developing new antibiotics. My resistant infection showed me we need them now. 2021. Available from: <https://www.statnews.com/2021/10/29/antibiotics-are-not-alright/> [Accessed November 2021]
3. WHO. No time to wait: securing the future from drug-resistant infections. 2019. Available from: https://www.who.int/docs/default-source/documents/no-time-to-wait-securing-the-future-from-drug-resistant-infections-en.pdf?sfvrsn=5b424d7_6 [Accessed October 2021]
4. IFPMA. Global Principles on Incentivizing Antibiotic R&D. Available from: <https://www.ifpma.org/wp-content/uploads/2021/02/IFPMA-Global-Principles-on-Incentivizing-Antibiotic-RD.pdf> [Accessed November 2021]
5. Wellcome. Why is it so hard to develop new antibiotics? 2020. Available from: <https://wellcome.org/news/why-is-it-so-hard-to-develop-new-antibiotics> [Accessed November 2021]
6. Munita JM, Arias CA. Mechanisms of antibiotic resistance. *Microbiol Spectr*. 2016; 4(2). doi: 10.1128/microbiolspec.VMBF-0016-2015.
7. Allen RJ, Waclaw B. Bacterial growth: a statistical physicist's guide. *Rep Prog Phys*. 2019; 82(1): 016601. doi: 10.1088/1361-6633/aae546.
8. Payne DJ, Miller LF, Findlay D, Anderson J, Marks L. Time for a change: addressing R&D and commercialization challenges for antibacterials. *Phil Trans R Soc* 2015; 370(1670): 20140086 doi: 10.1098/rstb.2014.0086
9. Colgan R, Williams M. Diagnosis and treatment of acute uncomplicated cystitis. *Am Fam Physician*. 2011; 84(7): 771-776.
10. Madappa T. Medscape. What is the etiologic role of *Escherichia coli* (E coli) in urinary tract infections? Available from: <https://www.medscape.com/answers/217485-38629/what-is-the-etiological-role-of-escherichia-coli-e-coli-in-urinary-tract-infections> [Accessed November 2021]
11. WHO. Global priority list of antibiotic-resistant bacteria to guide research, discovery, and development of new antibiotics. 2017. Available from: https://www.who.int/medicines/publications/WHO-PPL-Short_Summary_25Feb-ET_NM_WHO.pdf [Accessed October 2021]
12. New York Times. Urinary Tract Infections Affect Millions. The Cures Are Faltering. 2019. Available from: <https://www.nytimes.com/2019/07/13/health/urinary-infections-drug-resistant.html> [Accessed November 2021]
13. Colgan R, Keating K, Dougouh M. Survey of symptom burden in women with uncomplicated urinary tract infections. *Clin Drug Investig*. 2004; 24(1): 55-60.
14. GSK. 300 years of GSK - three centuries of innovation. Available from: <https://www.gsk.com/media/4573/300years-of-gsk.pdf> [Accessed November 2021]
15. GSK. Using vaccine science to combat antimicrobial resistance. 2020. Available from: <https://www.gsk.com/en-gb/behind-the-science/using-vaccine-science-to-combat-antimicrobial-resistance/> [Accessed November 2021]