Irresistible: developing new solutions for antimicrobial resistant STIs

Briefing

September 9, 2025

A silent pandemic

Antimicrobial resistance (AMR) caused an estimated 1.27 million deaths worldwide in 2019, underscoring its scale as a global health crisis. The WHO has identified three sexually transmitted infections (STIs) as being at risk of AMR: gonorrhoea (already high risk), *Mycoplasma genitalium (Mgen)* and trichomoniasis, with all three imposing a disproportionate burden on women and girls.

In our report *Irresistible*, we consider the future global response to AMR in STIs by analysing funding for new treatments, vaccines, and diagnostics, and the resulting product pipeline for these three STIs. By assessing which products are in development and how far away they are from the patient, we discuss the actions needed now to control STI associated AMR.

ABOUT IMPACT GLOBAL HEALTH

Impact Global Health is a not-for-profit research and policy organisation delivering unique insights into the global health R&D landscape. We provide data for decision making, analyses to shape the investment and policy agenda, and tools to support impactful global health R&D advocacy, across neglected diseases, emerging infectious diseases, sexual and reproductive issues, and women's health.

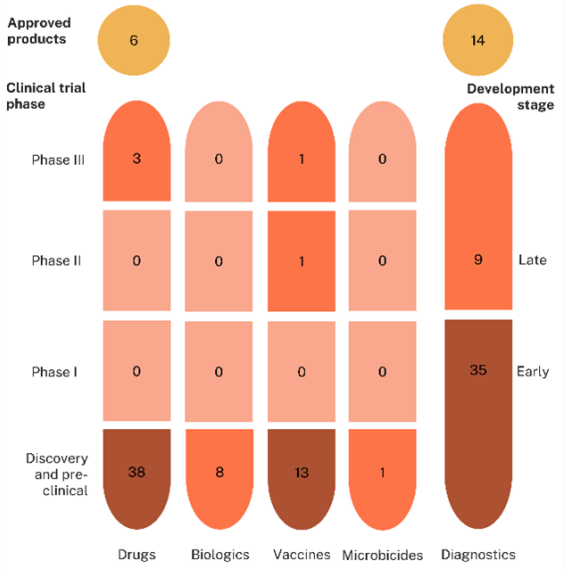
Funding and pipeline headlines

1. Since 2018, just over US$400m was invested in R&D targeting these three STIs with AMR risk; nearly all (97%) of this focused on gonorrhoea. Trichomoniasis and *Mgen* remain underfunded despite significant prevalence, limited treatment options and rising levels of resistance. This imbalance highlights the need for more diverse investments to address AMR in all major STIs.
2. Our review revealed a total of 52 approved products and 164 candidates in the pipeline for these three STIs with AMR risk with gonorrhoea dominating the landscape. Despite this there are no approved vaccines, biologics or microbicides for any of these infections. Existing drugs face rising levels of resistance but there has also been a decline in new drug development due to poor market incentives. Vaccine R&D is attracting more attention with both public and private investment.

Gonorrhoea

1. Antimicrobial resistance has been reported against almost all currently recommended treatments for gonorrhoea.
2. Promising new oral antibiotics (zoliflodacin and gepotidacin) are nearing approval but their effectiveness and longevity depends on better diagnostics.
3. Only three of the 14 approved gonorrhoea diagnostics can be used at or near the point of care (POC) and only one test can assess antibiotic susceptibility. This needs to change to enable targeted treatment and improve antibiotic stewardship
3. Gonorrhoea vaccine R&D rose from just $8m in 2018 to $42m in 2023 with two candidates now in clinical trials - including the repurposed 4CMen B vaccine which the UK began rolling out in 2025. Notably, vaccine R&D is the only product area industry invests in, perhaps reflecting expectations of greater future profitability compared to antibiotic development.

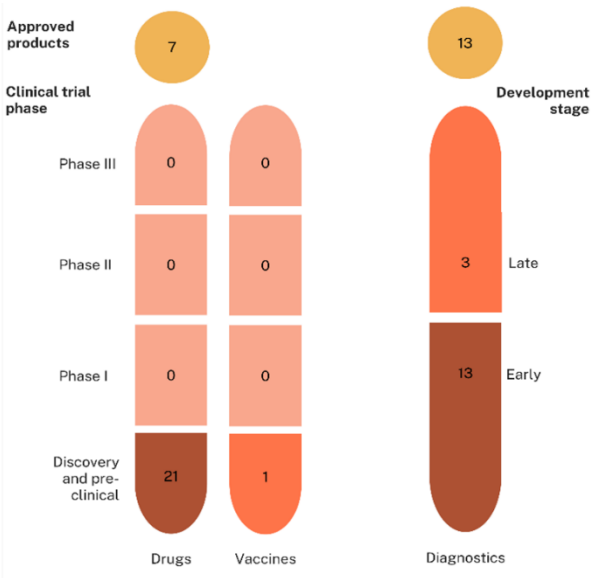
Figure 1- Pipeline candidates and approved products for gonorrhoea



Trichomoniasis

1. All recommended treatments for trichomoniasis belong to the same class of antibiotics (nitroimidazoles) raising concerns about cross-resistance .
2. There are approved POC tests including rapid diagnostic tests and at home tests for trichomoniasis. However, none of them offer antibiotic susceptibility testing hampering quick decisions on antibiotic use.
3. There was only a small amount of funding specifically targeting trichomoniasis with almost none for drug development.
4. The trichomoniasis pipeline is mostly in early stage development.
5. The US NIH was responsible for nearly all trichomoniasis funding in 2023. Greater funder diversity is needed to support a fledgling pipeline.

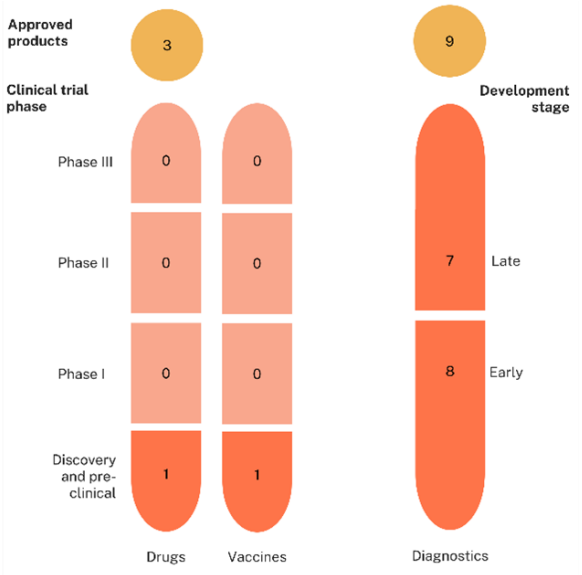
Figure 2- Pipeline candidates and approved products for trichomoniasis



Mycoplasma genitalium

1. The two recommended therapeutic options currently available to treat *Mgen* – macrolides and fluoroquinolones – are already experiencing widespread levels of antimicrobial resistance.
2. There has been very little funding specifically targeting *Mgen* and the US NIH was the sole funder of *Mgen* R&D in 2023.
3. The *Mgen* product pipeline is small. There are just 17 products in development most (15) are diagnostics.
6. The lone drug and one vaccine in development are both in early stages. Considering the rising antibiotic resistance profile of *Mgen*, this lack of drug development is a major concern.

Figure 3- Pipeline candidates and approved products for mycoplasma genitalium



What does the landscape tell us?

1. **Without improved diagnostics and vaccines, even excellent new antimicrobials will continue to quickly generate resistant strains, leaving us back at square one**

Closing critical gaps in STI diagnostics is essential to ensure appropriate use of antimicrobials and slow resistance, yet progress remains far behind therapeutic development. Rapid tests to confirm infection and guide antimicrobial treatment at point of care are needed. Funders must align diagnostic and treatment pipelines, while also investing in vaccines to reduce infection rates and extend the lifespan of existing and new drugs. Failure to act risks repeating the same resistance cycle.

2. **Antimicrobial stewardship requires us to take a long view; investing now in the products we need in the future and making better use of those we have today**

Developing new medicines, vaccines, and diagnostics to tackle AMR takes time. This lag between need and delivery means we must safeguard current drugs through stronger stewardship. While improved point-of-care diagnostics will eventually enable tailored treatments, in the meantime guidelines on dosages and resistance benchmarks should be refined to preserve the effectiveness of existing antimicrobials while we wait for new ones to be developed.

3. Observational data allows product developers to bring repurposed products to market much more quickly, presenting another option to stock the arsenal for our AMR response

Tackling AMR in STIs requires balancing rigorous evidence generation with the urgency of rising resistance. Product development and trial processes are too slow to keep pace, leaving gaps in available treatments, diagnostics, and vaccines. While late-stage clinical trials remain critical, they are not the only source of evidence. The UK's decision to repurpose the meningococcal vaccine 4CMenB for use against gonorrhoea illustrates this approach. By prioritising timely intervention for high-risk populations, the UK demonstrated a policy model where speed and cost-effectiveness outweigh traditional evidentiary thresholds—a lesson with wider relevance for the global AMR response.

UK leadership on gonorrhoea

The UK's recent approval of the repurposed meningococcal vaccine, 4CMenB, for use against gonorrhoea shows a promising avenue to tackle AMR-risk STIs. The approval bypassed conventional reliance on large, slow-moving Phase III trials. Instead, the UK drew on real-world observational data from New Zealand showing reduced gonorrhoea incidence among meningitis-vaccinated individuals. Despite efficacy estimates of only 33–47%, the rollout is projected to avert up to 100,000 cases in the next decade, reducing first-line antimicrobial use and buying time for new products.

4. The creation of 'insurance policy' second line treatments needs to be properly incentivised and rewarded, even for those which may never be widely distributed

Second-line antimicrobials are commercially unattractive because they are rarely used, yet they are a vital insurance against resistant infections. Regulators could ease approval standards to accommodate drugs with slightly lower efficacy, while health systems should incentivise and reward developers who foster a diverse product landscape. Approaches like the UK's subscription-based model or EU-style revenue guarantees offer ways to ensure these critical but seldom-used treatments remain available when needed.

FOR MORE INFORMATION

- Read the full *Irresistible* report: impactglobalhealth.org/insights/hubs/womens-health-hub
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