Bacteria developing new ways to resist antibiotics, doctors warn

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Bacteria are increasingly developing ways of resisting antibiotics, threatening a future in which patients could become untreatable, doctors have warned.

Over the last decade scientists in the UK studying samples from patients have identified 19 new mechanisms of antibiotic resistance.

The changes in bacteria are driven by genetics and mean they become able to repel even entire types of "last resort" antibiotics, including carbapenems and colistin.

For example, in 2016 an antibiotic-resistant strain of gonorrhoea emerged, which posed a major challenge for hospital doctors and sexual health experts seeking to treat those affected.

Over the same period no fewer than 12 new diseases and infections have been detected in England for the first time. Many have been brought into Britain by people who have picked it up abroad.

These include swine flu, first detected in the UK in 2009, Ebola (2014) and the Zika virus (2014), but also lesser-known diseases such as Rift Valley fever (2013), Middle East respiratory virus (2012) and Monkeypox (2018).

The two trends pose a threat to medicine's ability to keep patients alive and could drive up the annual death toll from antibiotic resistance, which stands at 2,200.

"Infectious diseases don't stand still. Bacteria are locked in an evolution race with antibiotics, constantly evolving new ways to avoid their impact," said Sharon Peacock, the director of Public Health England's (PHE) national infection service.

PHE highlighted the worrying trends as it outlined plans on Wednesday – contained in its new strategy on infectious diseases – to improve the NHS's ability to identify and control them as far as possible over the next five years.

Potential threats to health include the risk that globalisation and growing antimicrobial resistance may combine at some point to produce a global pandemic involving a previously unknown bug – what experts call the "Disease X" scenario.

Prof Chris Witty, the government's chief scientific adviser, said: "Despite our arsenal of vaccines and antimicrobials, infectious diseases remain a real threat to public health. We are constantly faced with new threats, and antimicrobial resistance is growing."

Over the last five years PHE has identified 32 "pan-drug resistant bacteria" that were able to resist all antibiotics thrown at them.

PHE's warnings about the growing threat to health posed by infections comes as scientists report on Wednesday their discovery of a new strain of group A streptococcus bacteria. Experts say it may explain the big rise since 2016 in the number of children being affected by scarlet fever and throat infections, and warned that in some cases it can result in sepsis or toxic shock.

Prof Dame Sally Davies, the chief medical officer for England, has warned that rising antibiotic resistance is "at risk of putting medicine back in the dark ages" and could claim the lives of much larger numbers of patients than now.

According to official estimates, there were 52,971 antibiotic-resistant infections recorded across the UK in 2015 and 2,172 deaths that were due to the person developing such an infection. In addition almost 80 disability-adjusted life years per 100,000 people in England were lost to antibiotic-resistant infections. That captures the number of years in which someone has suffered poor health or disability, or died earlier than expected.

Among European countries the UK ranks 13th for the number of disability-adjusted life years per 100,000 people.

PHE also believes that pandemic flu, declining numbers of people having recommended vaccinations and health inequalities are other threats to health over the next few years.

Celia Ingham Clark, NHS England's medical director for clinical effectiveness, said: "As part of the long-term plan the NHS will reduce the use of antibiotics by a further 15% to keep them as effective as possible, for example by offering patients access to new treatments."