Antimicrobial stewardship programmes

Remote consultations can help reduce antibiotic resistance

I nfectious diseases are caused by microorganisms such as viruses and bacteria. They encompass illnesses that are not transmissible to someone else, such as urinary or orthopaedic infections, or ones that are contagious, such as measles. In 2019, 13.7 million people worldwide died from infectious diseases, with respiratory and blood infections being the most dangerous.

Antimicrobials are a group of medicines used to treat these infections—they include antibiotics as well as antiviral, antifungal, and antiparasitic drugs. However, microorganisms can adapt and evolve over time and often develop ways to avoid being killed by these drugs. This antimicrobial resistance (AMR) makes infections much harder to treat and drives the use of multiple medications to manage the disease.

COMBATING ANTIMICROBIAL RESISTANCE

There is a higher risk of others getting ill and greater levels of death and severe illness if medications are less effective at clearing dangerous organisms from the body. The World Health Organization estimates that there are around 4.95 million deaths globally each year associated with AMR, most of which affect low- and middle-income countries. In 2019, AMR was described as one of the top ten global threats to public health, highlighting just how important it is to manage this development.

Several strategies can be used to combat AMR. Firstly, vaccines that prevent people from getting infections in the first place reduce the need for antimicrobial drugs further down the line. Secondly, developing novel drugs means that microorganisms don’t have time to develop resistance against them. Lastly, using existing medications carefully to avoid driving AMR can also help.

Using medications carefully and in accordance with prescription guidelines has health benefits by itself. Indeed, overuse of antimicrobial medications can lead to health complications such as allergy, diarrhoea, and kidney failure. There is also a financial burden: poorly chosen antimicrobials may be ineffective at clearing an infection, meaning that multiple courses of different medications are required to treat the illness.

Given the extent of the problem, methods to prescribe and monitor the use of antimicrobials are vital. In light of this, antimicrobial stewardship approaches have been developed.

ANTIMICROBIAL STEWARDSHIP

Valéria Cassettari, Newton Novato, and Maria Helena Flesch Onuchic, at the NotaDame Intermédica Advanced Outpatient Clinic in São Paulo, Brazil, explored the impact of remote consultations with an infectious disease physician on antimicrobial regimens in outpatients. Their work showed that many prescriptions need amending. Highlighting the importance of rigorous prescribing guidelines and regular review of antimicrobials to allow the drugs to be used as effectively and safely as possible.

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and dose adjustment (5%). For example, the average duration of treatment in the suggested plan was 13.3 days, compared to 16.9 days in the original care plan.

Although many patients were advised OPAT, the antimicrobial regimens recommended by the specialist doctor tended to trend towards oral therapies. There was also a significant proportion of revisions to the diagnosis of infection and duration of treatment, and the doctor suggested discontinuing antimicrobial treatment in 7% of cases.

Many patients had laboratory investigations to explore what type of microorganisms was responsible for the illness, as the characteristics of the growing culture (a plate or tube with the right conditions for organisms to grow) can be used to identify the specific microbe. Where an infectious agent was identified, the specialist doctor considered 23% of prescriptions to be inadequate and requiring further review.

Detailed notes were kept for each treatment evaluation in the study, so that Cassettari, Novato, and Onuchic were able to review what happened following any recommended changes to antimicrobial regimens. There was a very low rate of treatment failure, with only 2 cases (0.4%) failing to show improvement following review. Both these treatments were then amended, which led to favourable outcomes. Although no serious adverse outcomes were identified for any patients involved in the programme, the research team explains that these two failures show the need for rigorous intervention criteria as well as possible limitations of using remote evaluations rather than face-to-face appointments.

CHANGES IN PHARMACY PRESCRIPTIONS

In addition, the study reviewed data from pharmacies to see how these clinical recommendations translated into medication usage. The researchers were able to show a downward trend in the number of antimicrobial prescriptions after the introduction of the stewardship programme. In previous years, the monthly OPAT dispensing rate had been increasing.

The work done by the group at NotreDame Intermédica Advanced Outpatient Clinic highlights the need for antimicrobial stewardship programmes to review and refine medication regimens of patients at home or in a care facility. Their study concludes that remote consultations by a doctor specialising in infectious diseases are safe and effective in the home care setting and does not require additional technological resources to undertake the reviews.

Using the most appropriate therapeutic approach will improve effectiveness, reduce health and financial costs, and slow the development of antimicrobial resistance. Management strategies must take into account the needs and resources of healthcare services, but could have huge benefits for patients and prescribers alike.