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Internet-based training could help in the fight against antibiotic resistance

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Antibiotic prescribing rates for acute respiratory tract infections could be significantly lowered using internet-based training for clinicians, new research has shown.

In a study, led by the University of Southampton and published in *The Lancet* today (Wednesday 31 July), an internet-based training programme has shown to reduce antibiotics prescribing rates by as much as 62 percent.

Paul Little, Professor of Primary Care Research at the University of Southampton, comments: "The high volume of prescribing antibiotics in primary care is a major driver of antibiotic resistance, which is one of the great public health dangers of our time, and raises the real prospect of serious infections becoming untreatable.

"Training has been shown to have a positive effect on lowering prescription rates but the way training has been delivered and its reliance on highly trained staff around centres of excellence severely limits the impact in everyday practice. Novel techniques are therefore needed to lead changes at a national and international level. Internet training has the advantage that it can be disseminated widely at a low cost and does not need much resource."

Lower respiratory tract infections (LRTI), such as chest infections like bronchitis, are one of the most common acute illnesses treated in primary care in developed countries. Although viruses are believed to

cause most of these infections, there is still debate about whether or not antibiotics are beneficial for some patients in the treatment of LRTI, particularly in older patients. Meanwhile antibiotics are still being prescribed in high amounts, fuelling antibiotic resistance.

In the study, from the GRACE (Genomics to Combat Resistance against Antibiotics in Community-acquired LRTI in Europe) consortium and funded by the European Community's Sixth Framework Programme, 246 clinical practices from six countries were recruited. They were randomised to one of four trial arms: usual care, internet-based training to use a C-reactive protein (CRP) test (an indicator test for pneumonia), internet-based training in enhanced communication skills, and combined training in both CRP and enhanced communication.

The study, supported by the National Institute for Health Research Clinical Research Network in England, showed that clinicians who received training in using the CRP test or the enhanced communications skills training significantly reduced their antibiotic prescribing rates for LRTI, compared to usual care (47 per cent and 32 per cent respectively). Furthermore, clinicians who received training in a combination of both reduced prescribing antibiotics by 62 per cent.

Additionally prescribing rates also fell for upper respiratory tract infections (e.g. colds, influenza, and throat, ear and sinus infections). These infections were not targeted by the intervention, which suggests that further modifications could be made to the internet training to better address these conditions, which would maximise the impact of training.

Professor Little adds: "These interventions have shown that providing interactive training methods using the internet to modify antibiotic prescribing is remarkably effective. Moreover the internet-based training programmes are transferrable between very different primary care settings."

More information: Effects of internet-based training on antibiotic prescribing rates for acute respiratory tract infections: a multinational, cluster, randomised, factorial, controlled trial, *The Lancet*, 2013.

Provided by University of Southampton