A systematic review and meta-analysis of interventions targeting antibiotic use in aged care facilities

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Objectives
High levels of inappropriate antibiotic use have been reported in residential aged care facilities (RACFs), putting residents at risk and contributing to the burden of antibiotic resistance. Our objective was to conduct a systematic review and meta-analysis of interventions targeting antibiotic use in RACFs.

Methods
We searched four databases for original research articles reporting results of controlled and uncontrolled interventional studies in RACFs. Data on antibiotic use and appropriateness of antibiotic use, as well as results of any process evaluations were extracted. The risk of bias was assessed for each study using an adaptation of the Cochrane Effective Practice and Organisation of Care group’s risk of bias assessment.

Lessons Learned
Of the 19 studies included, ten used controls and five were cluster randomised trials. Four were rated as having an overall low risk of bias. All interventions included multiple-components and education strategies were the most common component used (17 studies). Meta-analyses were conducted on three outcomes: percentage of residents on an antibiotic, appropriateness of decision to treat with antibiotics, and appropriateness of antibiotic selection. No intervention was associated with a significant change in these outcomes. Six studies reported results of process evaluations and highlighted context specific barriers to intervention implementation and effectiveness.

Implications
There is limited evidence of effective interventions to reduce inappropriate antibiotic use in RACFs. The complex nature of the RACF setting presents unique challenges to intervention implementation. New intervention approaches, and stronger study designs with controls, are needed to tackle overuse of antibiotics in this setting.