

PRINCESS Study

Probiotic to reduce infections in care home residents



Summary for care homes

Why did we do the PRINCESS Study?

Care home residents develop more infections and are prescribed more antibiotics than other sectors of the population. Infections are more common because frailer, older people often have a weakened immune system, and care homes residents live in close proximity so infections can spread more easily. As well as frequent infections having an impact on their quality of life, requiring more antibiotics exposes them to risks of side-effects and anti-microbial resistance¹. Other than vaccination and hygiene methods, there are few interventions known to prevent infection in older people living in care homes.

Probiotics are friendly 'live' bacteria that may help improve the immune system of care home residents and reduce the spread of harmful bacteria. There is some evidence that probiotics can help reduce infections, but evidence on whether they can prevent infections and reduce antibiotic use in care home residents was limited.

What did we do?

In the PRINCESS study, 310 care home residents aged over 65 from across 23 UK care homes were randomised² to receive either a daily capsule of two probiotic strains or a placebo that looked identical but did not contain any probiotic. We then followed their health and wellbeing for a year to see whether they developed infections and on how many days they had antibiotics. We also asked residents (and/or their carers) about their general health and wellbeing. Residents were also asked to provide blood and other samples, if they were happy to do so. As trials such as this are not common in care homes, we also asked care home staff, residents' families, and research nurses about their views and experiences of taking part in the study.



Key messages from the PRINCESS Study:

- Older people living in care homes are prone to infections and often require antibiotics
- Previous studies suggested probiotics might reduce infections and the need for antibiotics
- The PRINCESS Study found that a daily dose of two strains of probiotics did not reduce antibiotic use
- We also found that conducting clinical trials in care homes is considered acceptable
- Trials like PRINCESS require good relationships between the research and care home communities
- Research nurse and care home support was essential to successfully conducting a clinical trial in this setting

¹ For more information about antimicrobial resistance see: <https://bit.ly/3xWdaDe>

² For an explanation of randomisation see: <https://bit.ly/3h5wfNu>

What did we find?

The study found that there was no overall significant difference in how many antibiotics the two groups needed, with the probiotic group having antibiotics for 12.9 days on average, compared with 12 days for the placebo group. Residents' overall health and wellbeing was generally similar between the two groups.

Conducting a clinical trial such as this in care homes was viewed positively by the people we interviewed, with the low-risk nature of the probiotic supplement being key to the acceptability. How involved care home managers were in the trial was an important factor in the successful running of the trial, with good working relationships between research nurses, and care home staff also being important. However, as care homes are very busy places, research activities were difficult to sustain without the continued engagement and regular visits by research nurses.

What does this mean?

Although we found no evidence of a benefit from the probiotic capsule used in PRINCESS, the findings may not apply to other probiotics or to older people living outside of UK care homes.

Conducting trials like PRINCESS can be difficult but building close relationships between research nurses and those living and working in care homes is key to carrying out research that improves the lives of older people living in care homes.

A full report of the PRINCESS Study findings can be found here: <https://doi.org/10.3310/eme08070>

The diagram below shows the main results from the PRINCESS Study:

