

## Antibiotic Research in Care Homes (ARCH): Key findings

### Why did we do this study?

Antibiotic resistance, which leads to infections that can't be treated with antibiotics, is a growing problem worldwide. The antibiotics we use contribute to the development of antibiotic resistance, so it is important that we only use them when they are really needed. However, it is not always easy to tell when they are needed, particularly in older people living in care homes as they often have multiple health problems and may not be able to describe their symptoms, for example, if they have dementia.

Research published before this study found that residents of care homes for older people are often prescribed antibiotics, some of which are not needed, and they have high levels of antibiotic resistant infections. Not much was known about how or why so many antibiotics are used in care homes or how this could be improved, as most research on improving the use of antibiotics takes place in hospitals or general practices.

### What did we do?

There were three main phases in the ARCH (Antibiotic Research in Care Homes) project, as shown in Figure 1.



Figure 1. Flow diagram of main phases of ARCH

We analysed anonymised data from all 148 care homes for older people in two NHS Health Boards in Scotland to calculate antibiotic prescribing rates in different care homes, and resident and care home factors (e.g. age of resident, size of care home) affecting these rates. We then worked with care home managers, staff, residents and their relatives from seven of these care homes, and with general practitioners (GPs), Advanced Nurse Practitioners (ANPs) and community pharmacists who provided healthcare services to these homes, to collect more detailed information on how potential bacterial infections were identified and managed in these settings using observations of their everyday work, interviews and surveys to try and understand what affects antibiotic use in care homes. We combined the findings from these different sources of information to produce recommendations for a support package to improve antibiotic use in care homes. We presented and discussed these in a workshop with care home staff, residents, and their carers. The support package was then tested in two care homes, and we collected additional feedback using focus groups, interviews and meetings on what people thought of the package and any challenges to putting it into practice.

## What did we find?

1. There were large differences in antibiotic use between care homes, with residents in some care homes almost ten times as likely to have an antibiotic prescribed compared to residents in other care homes. The differences in antibiotic use could not be fully explained by care home or resident factors available for statistical analysis. However, the care home a resident lived in had more influence on antibiotic use than the GP practice the resident was registered with. This fits with our observation and interview findings that most steps leading to a prescription take place in the care home (as shown in Figure 2) and the way things are done varies between care homes. This highlights the important role of care home staff and local ways of working within care home settings in antibiotic use, not just the person writing the prescription.

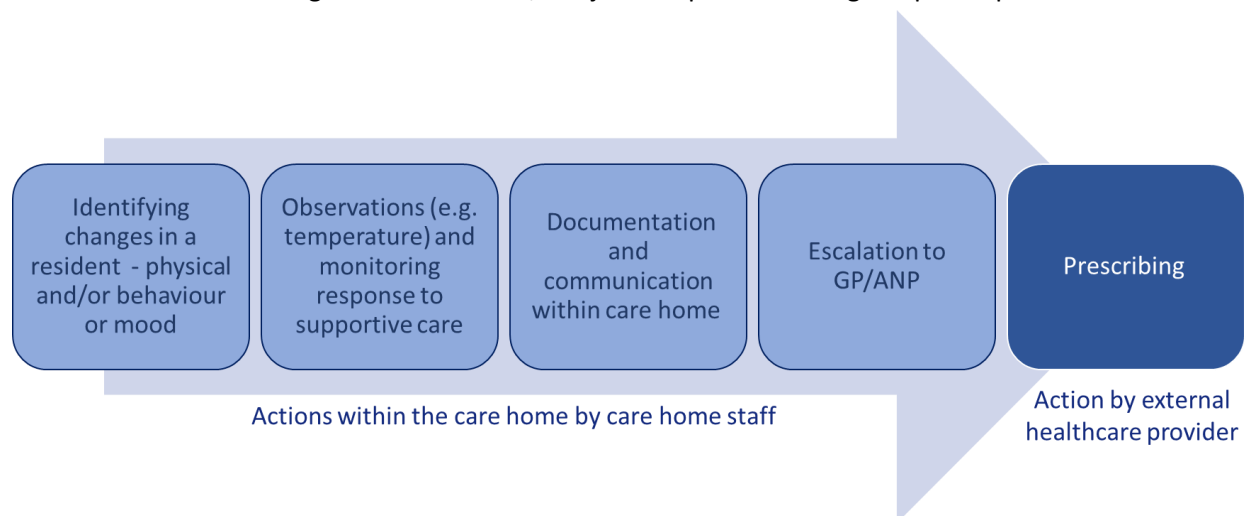


Figure 2. Process involved in an antibiotic prescription being written for a care home resident

2. The important role of care home staff in assessing residents and making decisions that affect antibiotic use (e.g. drawing on their knowledge of residents) was not fully recognised by care home staff themselves, or other people involved such as GPs.
3. Providing safe, high-quality care, and improving care for residents are the highest priorities for all care home staff but they reported several factors which reduced their ability to contribute to improving antibiotic use. These factors included a lack of specific knowledge and training around infections and antibiotics, reduced opportunities for training due to staff shortages and high staff turnover, restrictions around their roles and responsibilities, and a fear of “missing something” by not requesting an antibiotic prescription, leading to worry that the resident might become more unwell.
4. A support package including a set of tools to support the assessment and monitoring of residents with suspected infection and to help communication both within the care home and with GPs and ANPs, training videos, and appointing staff as Antibiotic Champions, received positive feedback. Full testing of the support package in everyday practice in care homes was limited by staff shortages, which were made worse by the COVID-19 pandemic.

## How might these findings be used?

Opportunities to improve infection management and antibiotic use in care homes identified in ARCH are shown in Figure 3.

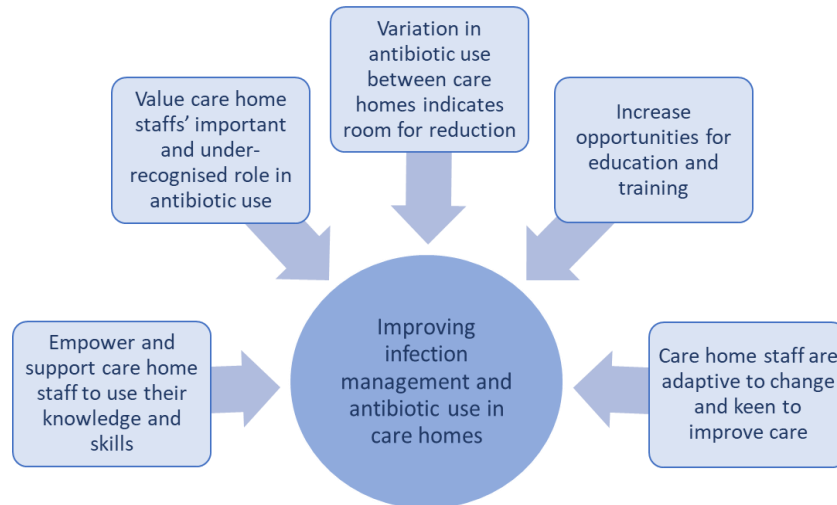


Figure 3. Opportunities for improving infection management and antibiotic use in care homes

These opportunities and the findings above could be used:

- To highlight the issues and challenges around antibiotic resistance in care homes to the public including residents' families and carers
- By care home managers and staff wanting to make improvements in their own care homes
- By GPs, ANPs and pharmacists (in GP practices and in community pharmacies) who provide care and/or supply antibiotic prescriptions for care home residents
- By NHS and governmental organisations concerned with antibiotic use and resistance
- By Social Care, NHS and governmental organisations that support and manage care home staff, including through education and training, and designing improvements
- By Researchers planning and conducting studies in care homes

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