The COVID-19 pandemic has highlighted the need to invest in care home research infrastructure

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Abstract (248/250 words)

The COVID-19 pandemic resulted in catastrophic levels of morbidity and mortality for care home residents. Despite this, research platforms for COVID-19 in care homes arrived late in the pandemic compared with other care settings. The Prophylactic Therapy in Care Homes Trial (PROTECT-CH) was established to provide a platform to deliver multi-centre cluster-randomized clinical trials of investigational medicinal products for COVID-19 prophylaxis in UK care homes. Commencing set-up in January 2021, this involved the design and development of novel infrastructure for contracting and recruitment, remote consent, staff training, research insurance, eligibility screening, prescribing, dispensing, and adverse event reporting; such infrastructure being previously absent. By the time this infrastructure was in place, the widespread uptake of vaccination in care homes had changed the epidemiology of COVID-19 rendering the trial unfeasible. Whilst some of the resources developed through PROTECT-CH will enable the future establishment of care home platform research, the near absence of care home trial infrastructure and nationally-linked databases involving the care home sector will continue to significantly hamper progress. These issues are replicated in most other countries. Beyond COVID-19, there are many other research questions that require addressing to provide better care to people living in care homes. PROTECT-CH has exposed a clear need for research funders to invest in, and legislate for, an effective care home research infrastructure as part of national pandemic preparedness planning. Doing so would also invigorate care home research in the interim, leading to improved healthcare delivery specific to those living in this sector.

Article

The COVID-19 pandemic had a devastating impact on care home residents in the UK and internationally. By December 2021, there had been 30,616 deaths in English care homes due to COVID-19[1]. This is likely an underestimate given issues with diagnosing and reporting COVID-19 in care homes during early 2020[2], and because these data don't include care home resident deaths in hospital.

This high mortality was in part due to the prevalent frailty, disability, cognitive impairment and multiple long-term conditions that people in care homes live with, all of

which contribute to increased risk of adverse outcomes during COVID-19. Another important contributor was multiple residents living together under one roof who required regular close contact with carers, enabling greater transmission compared to community-dwelling peers.

Given that the pandemic affected care home residents more adversely than any other population group, it might have been anticipated that they would have been prioritised for early trials of COVID-19 interventions. In practice they were not. The RECOVERY trial[3], the most successful randomised controlled trial (RCT) platform of treatments for COVID-19, was designed for those admitted to hospital. The community-based PRINCIPLE RCT platform[4] for COVID-19 treatments focussed on recruiting participants through general practitioners and did not have capacity to recruit people with cognitive impairment or to engage with care homes in a structured or systematic way.

RECOVERY and PRINCIPLE were set up rapidly early in the pandemic. To expedite recruitment, they harnessed existing research infrastructure through Research and Development departments in acute hospitals, the National Clinical Research Network (CRN) and NHS Research Scotland. Care homes have not historically had such infrastructure. The Enabling Research in Care Homes (EnRICH)[5] network, an initiative to encourage research in care homes with separate structures in each UK nation, was designed to disseminate research opportunities to care homes. It was not established to create research infrastructure around care homes of the sort that would facilitate trial delivery at scale and pace during a pandemic.

Successful observational studies were established in care homes early in the pandemic, most notable the VIVALDI study[6]. For these, significant effort was required to develop data collection mechanisms in a sector where collation of resident and service data is not routine[2]. It was not until later that two Urgent Public Health priority intervention studies were commissioned and designed to involve care homes. The first of these, the COVID-19 National Diagnostic Research and Evaluation Platform (CONDOR), included a workstream to evaluate automated point-of-care tests for COVID-19 in care homes commencing August 2020[7]. Recognising the challenges of conducting such research for the first time in care homes in the context of a pandemic, the CONDOR researchers developed a relatively modest approach of conducting usability tests of diagnostic machinery already validated in other settings, minimising the need for novel research infrastructure.

The second was the Prophylactic Therapy in Care Homes Trial (PROTECT-CH)[8], designed in response to a National Institute of Health Research (NIHR) commissioned call in October 2020, and starting in January 2021. This was a multi-centre cluster-randomised controlled trial platform designed to evaluate drug-based primary and secondary prophylaxis against COVID-19 in care homes working across all 4 UK nations. As a Clinical Trial of Investigational Medicinal Products (CTIMP) using potentially unlicensed drugs, this study had a much steeper mountain to climb. To commence recruitment, the team had to overcome several substantial hurdles. We had to develop research agreements with multiple care home provider organisations – including private companies, charities and local authorities – which had no routine mechanism for scrutinising or signing research contracts. We developed remote training protocols and standard operating procedures for a mostly research-naïve workforce. We established remote consent procedures, taking account of different legislative frameworks across the UK, able to include the many residents lacking capacity to provide consent and whose family members were often geographically remote from care homes. We recruited a national team of Principal Investigators and developed protocols to enable urgent prescribing and dispensing of study drugs in settings that don't have resident out-of-hours medical or pharmacy cover. We negotiated terms of care home trial insurance – a product hitherto unavailable – at a time when insurers were extremely reticent about care home insurance in general[9]. We developed protocols to collect study data using

national routinely collected data, overcoming the paucity of such data in care homes[10] and limited staff availability for data collection. It took five months to achieve all of this. By this time, the COVID-19 vaccination programme in care homes had substantially changed the epidemiology of outbreaks in these settings and the incidence of infection was too low to make the trial feasible.

What can we learn from this? RECOVERY and PRINCIPLE have shown that research success during a pandemic is contingent on being able to start rapidly, and to react and adapt swiftly. This requires the existence and availability of appropriate research infrastructure. PROTECT-CH showed that such infrastructure is not currently available in care homes and that setting it up takes too much time and effort to be of use in the time-pressured context of a pandemic. It is possible that the protocols and operating procedures developed by PROTECT-CH[8] might reduce this lead time in the face of future urgent health crises. It should be noted, however, that many of the challenges – around care home recruitment and contracting, working with unlicensed drugs, the need to negotiate insurance anew, and the lack of staff awareness and training about research – would still result in substantial delay.

Although PROTECT-CH was the first attempt to conduct a platform-based CTIMP in a UK care home setting, it was not the first RCT undertaken in collaboration with the sector. Studies ranging from falls prevention[11], through stroke rehabilitation[12], drug burden reduction[13] to dietary intervention[14], have repeatedly illustrated the substantial time and investment required with each new trial to train staff, develop and implement standard research operating procedures and establish data collection mechanisms. This infrastructure is then dismantled after each trial.

Care home residents are among our most vulnerable citizens and are both frequent users of healthcare and those most subject to iatrogenic harm. The evidence base for care in this population is very poor, and there is a clear need for RCTs delivered in care homes. There are multiple questions arising just from the uncertainty over how protocols developed in care homes for COVID-19 might prove beneficial against future seasonal winter outbreaks. The NIHR has recognised extending research into Social Care settings as being a priority. There are more beds in care homes than there are in hospitals in the UK yet, as illustrated here, there is not currently adequate infrastructure for conducting research in this setting. The data collation infrastructure that supported VIVALDI and similar studies is at risk of disappearing post-pandemic and creating trials infrastructure anew for every individual study is wasteful and limits learning from past experience.

If a more sustainable infrastructure is to be developed, what would this look like? It would require the fundamentals of research governance, such as insurance and contracting, to be clearly addressed. Given that care homes are largely run by private and third sector organisations, a remuneration model would be required to take account of costs involved with research. Although the care home industry is fragmented and disparate, there are national umbrella organisations that would facilitate such negotiations. Permanent solutions to the standardised collection and collation of routine care home data are required. The CRN in England, and equivalent infrastructure in other nations, would need investment to ensure that sufficient expert research nurses and trial administrators were on hand to support research work as new studies became available. Arrangements with General Practitioners (GPs), the doctors primarily responsible for care homes, to support research in care homes need to be made routine. The relationship of GPs with care homes is likely to be the focus of considerable negotiation and resettlement post-pandemic and it would be logical for research involvement and support to form part of this. From a resident and family perspective, it is important to give them a say in the extent, and type, of research involvement that their care home enables. Approaching these issues in a structured and proactive way, would help residents and

families make more considered and informed decisions about whether and when to participate in research.

Looking outside the UK, whilst there are examples of care home networks established to support research – most notably in the Netherlands[15] – these are not designed to ensure the routine availability of trials infrastructure of the sort seen in acute hospitals. Whichever country invests in such infrastructure first will be an international trailblazer.

The work described in this paper would require substantial investment – but the renegotiation of many aspects of care delivery in care homes post-pandemic presents an ideal opportunity to consider how such investment might be made. Doing this would establish a care home research infrastructure fit for purpose. We should never again be in the situation where the group most at risk from adverse outcomes, are beyond the reach of research which could be potentially life-saving.

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Disclaimer

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Registration

PROTECT-CH was registered on the European Union Drug Regulating Authorities Clinical Trials Database (Reference: EudraCT 2021-000185-15)

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