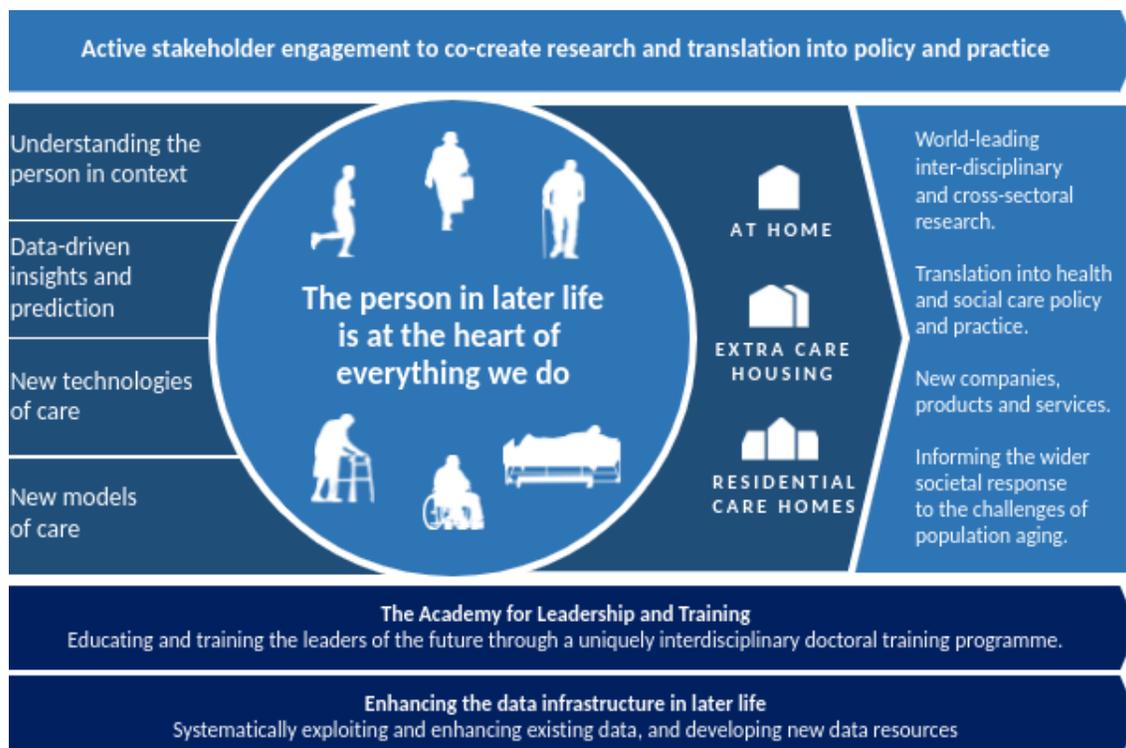# The Advanced Care Research Centre (ACRC)

The Advanced Care Research Centre (ACRC) is a new, interdisciplinary research collaboration, initially funded by a grant of £20million from Legal and General Group plc. Over 30 academics are involved and over 25 new researchers and other staff have been brought on board. The academics and researchers are mainly based at the University of Edinburgh but also at the University of Newcastle and University College London (UCL), and bring a wealth of experience from a range of disciplines. More than 35 PhD students will be enrolled over the next five years, with 13 starting in September 2021.

Our vision is of high-quality data-driven, personalised and affordable care that supports the independence, dignity and quality-of-life of people living in their own homes and in supported care environments. The ACRC is focused on care in later life, which is a pressing priority for our health and social-care systems. Our core principle is that the person in later life will be at the heart of everything we do. Our work will be co-designed by members of the public and research community. We are also keen to work with other organisations, patients, the public, professionals and policy makers across these areas.

An infographic outlining the key areas of work at the ACRC:

Cross-cutting initiatives
The Academy for Leadership and Training in Advanced Care
We have established a four-year PhD with integrated study programme to create future leaders who will enhance society's response to the challenges of an ageing population.

Enhancing the data infrastructure
The work in this area will support the infrastructure to help data-driven research. The use of health and social care data in research often relies on data being recorded in 'structured fields'. However, information about physical and mental

functioning, care needs, and social support is often recorded as 'free text' which is difficult to gather and to analyse. We are developing ways to bring together the different types of data to give us a clearer picture of people's care needs. This will have a wide range of potential applications and benefits for research and health and social care.

The research

Research at the ACRC is centred on four themes, which are outlined below.

Understanding the Person in Context

We are using innovative social science methods to understand how people manage the challenges posed by changes in physical and mental functioning in later life, in the context of their social support, personal finances, community resources and statutory services. Our ambition is to help maintain quality of life and sense of self for the individual as they experience different stages of later life, ensuring we understand the supportive physical, social and economic environments that are needed to provide this. Our work will provide an exciting opportunity to generate a longitudinal understanding of the experience of transitions and care in later life.

Data-driven insight and prediction

This work will develop and disseminate new risk prediction models for outcomes such as mortality, increased care needs or hospitalisation. In the context of population ageing and resource constrained services, risk prediction tools have great potential to ensure that people are getting the right care in the most cost-effective way. This work will take advantage of the rapid increase in data that is now collected and improvements in computing power. Analysis of new data will give us fresh insights into health, vulnerability and care in later life. These insights will make it easier to predict, and provide for, the future care and support needs of individuals.

New technologies of care

Care in later life in the community is typically low tech. This research will develop practical, care-driven technologies that are fit for people in later life. Our initial aim is to develop and validate machine learning and artificial intelligence prediction to advance and evaluate health and social care interventions to improve health outcomes. This means exploring and developing platforms that can produce accurate data about instant events (e.g. vital signs and serious incidents such as falls), short-term activities (e.g. those of daily living) and long-term pursuits (e.g. physical and mental activities over weeks and months) to extract information and patterns that can be used to prevent adverse events, encourage adherence to care pathways and effective interventions. When it comes to care for people in later life, frailty, having multiple conditions, and cognitive impairment mean that it is essential to carefully consider the choice and use of technology. This work will be a collaboration between researchers from a range of disciplines, people in later life and their families, health and social care professionals, and businesses in this market.

New models of care

Care is often delivered as discrete services that are variably integrated and largely reactive to events, rather than responsive to the wishes, priorities and needs of someone in later life. We are working with health and social care partners to understand and evaluate existing service innovation. We will also co-create new models of care which are responsive to individual circumstances and incorporate new data-driven prediction tools and technologies of care.

There is additional information online: https://www.ed.ac.uk/usher/advanced-care-research-centre; and for any queries or to find out more, please email: acrc@ed.ac.uk