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The dynamics of ageing: The 2014 English Longitudinal Study of Ageing (Wave 7)

Technical Report

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Contents

1 Introduction 1

1.1 Overview 1

1.2 Content of this report 3

2 Sample design 4

2.1 Introduction to sample design 4

2.2 HSE as a sampling frame 6

2.3 Cohort eligibility 7

2.4 ELSA Cohort 1 8

2.4.1 Eligibility criteria at wave 1 (Cohort 1) 9

2.4.2 Fieldwork eligibility checks and identifying new partners 9

2.4.3 Eligibility criteria for Cohort 1 at later waves 11

2.5 ELSA Cohort 3 11

2.6 ELSA Cohort 4 12

2.7 ELSA Cohort 6 12

2.8 ELSA Cohort 7 13

3 Survey instruments 15

3.1 Overview of data collection 15

3.2 CAPI questionnaire 15

3.2.1 CAPI questionnaire modules 16

3.2.2 Wave 7 CAPI questionnaire changes 17

3.2.3 CAPI administration 19

3.3 Self-completion questionnaire 21

3.3.1 Self-completion questionnaire changes 21

3.4 Variants of the main ELSA interview 22

3.4.1 Partial interviews 22

3.4.2 Proxy interviews 22

3.4.3 Institutional interviews 23

3.5 Telephone Refusers' Survey 25

3.6 Interview timings 25

4 Fieldwork procedures 26

4.1 Interviewer training 26

4.2 Piloting/Dress Rehearsal 26

4.3 Mainstage Fieldwork design 27

4.3.1 Contact procedures 27

4.3.2 Main fieldwork 28

4.3.3 Reissue fieldwork and refuser's survey 28

4.4 Fieldwork materials 28

4.5 Consents 28

4.6 Fieldwork follow-up rules 29

4.6.1 Cohorts 1, 3, 4 and 6 Core Members 29

4.3.2 Cohort 7 refreshment sample 29

4.3.3 Partners 29

4.7 Deaths 30

4.8 Tracing movers 30

4.9 Other methods to encourage response 30

4.10 Feedback to participants 31

5 Response rates at wave 7 32

5.1 Response to main interview 34

5.2 Ineligibility and unknown eligibility 35

5.3 Fieldwork response rates 36

Proportion of eligible core members issued to field at wave 7 37

Fieldwork household contact rate 38

Fieldwork co-operation rate 38

Individual response rate 38

Reasons for non-response 39

5.4 Study response rates 39

5.5 Response to self-completion questionnaire 43

6 Weighting 44

6.1 Longitudinal and cross-sectional weights introduction 44

6.2 Longitudinal weights 45

6.2.1 Longitudinal weights (wave 1 base) 45

6.2.2 Longitudinal weights (wave 4 base) 45

6.3 Cross-sectional weights 47

6.3.1 Non-response weight for Cohort 3 48

6.3.2 Non-response weights for Cohort 4 49

6.3.3 Non-response weights for Cohort 6 49

6.3.4 Non-response weights for Cohort 7 50
6.3.5 Population estimates for those aged 63+ 50
6.3.6 Cross-sectional weights for those aged 63+ 51
6.3.7 Cross-sectional weights for those aged 50-62 52
6.3.8 Putting the cross-sectional weights together 53
6.4 Self-completion weights 55
6.4.1 Self-completion weights 55
7 Data editing and preparation 57
7.1 Data preparation 57
7.2 Paper self-completions 57
7.3 Accessing ELSA data 58
8 References 59
Appendix A Key Survey Measures By Wave 62
Appendix Table A.1: Demographic data at each wave of ELSA 62
Demographics 62
Appendix Table A.2: Content of the economics data at each wave of ELSA 63
Household Income 63
Appendix Table A.3: Measures of health, disability, and health behaviour at each wave of ELSA 66
Health behaviours 67
Mental health 67
Physical examination and performance data (Interviewer visit) 68
Physical examination and performance data (Nurse visit) 68
Blood assays 68
Appendix Table A.4: Measures of cognitive function at each wave of ELSA 70
Memory 70
Appendix Table A.5: Psychosocial measures at each wave of ELSA 71

Tables

Table 2.1 HSE response rates 6
Table 5.1 Number of respondents at each ELSA wave split by Cohort 34
Table 6.1 Core member respondents in England at wave 7 47
Table 6.2 Distributions of key variables used in calibration weighting 52
Table 6.3 Household population estimates (mid-2014) 54
Table 6.4 Core member respondents in England at wave 7 by age and sex (weighted) 54
Table 6.5 Core member respondents in England at wave 7 by age and sex (unweighted) 55

Appendix Table A.1: Demographic data at each wave of ELSA 62
Appendix Table A.2: Content of the economics data at each wave of ELSA 63
Appendix Table A.3: Measures of health, disability, and health behaviour at each wave of ELSA 66
Appendix Table A.4: Measures of cognitive function at each wave of ELSA 70
Appendix Table A.5: Psychosocial measures at each wave of ELSA 71

List of Figures

Figure 2.1 ELSA sample design 5
Figure 3.1 Main interview modules wave 7 16
Figure 3.2 Benefit and financial units 20
Figure 4.1 Methods of encouraging response in wave 7 30
Figure 5.1 Types of wave 7 cross-sectional conditional rates 33
Figure 5.2 Longitudinal response rate (wave 7) 33

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1 Introduction

This technical report provides methodological information relating to the seventh wave of the English Longitudinal Study of Ageing (ELSA) in 2014-15. The report aims to provide an overview of the sampling design, study content, fieldwork response, weighting procedures and data preparation adopted at wave 7. Reference is also made to earlier waves of the study to provide context for the reader and to highlight key changes made to the study over time. The technical reports for each wave of ELSA should be used in conjunction with other materials deposited at the UK Data Service.[1,2]

1.1 Overview

The English Longitudinal Study of Ageing (ELSA) aims to better understand the social and economic conditions, and the health and well-being of older people. It measures outcomes across a wide range of domains to provide high-quality multidisciplinary data that can be used to investigate health, financial, social and other experiences encountered by older adults in England. These include health trajectories, disability and healthy life expectancy; biological markers of disease; the determinants of economic position in older age; household and family structure, social networks and social supports; and predictors of well-being. Objective and subjective data are collected every two years from a representative sample of the English population aged 50 years and older, beginning in 2002 with a sample of 11,391 men and women living in private residential accommodation in England.

The design and collection of data for the ELSA study has been developed through a collaboration between the following institutions:

- Department of Epidemiology and Public Health, University College London
- Institute for Fiscal Studies
- NatCen Social Research
- School of Social Sciences, University of Manchester
- Norwich Medical School, University of East Anglia

ELSA is harmonised with ageing studies in other countries to facilitate international comparisons, and is linked to financial and health registry data. ELSA data have been used to explore the dynamics of ageing, to inform policy debates and for comparative analysis with the Health and Retirement Study (HRS) in the United

[1] https://discover.ukdataservice.ac.uk/catalogue/?sn=5050&type=Data%20catalogue

[2] A User Guide covering all the waves is also available. This shows how to analyse the data and provides further information about weights.

States, and the Survey of Health and Retirement in Europe (SHARE). Funding for the first seven waves of ELSA was provided by the US Institute on Aging (NIA) and a consortium of British Government departments[3]. Ethical approval for the study (ELSA wave 7) was granted by the South Central Berkshire Research Ethics Committee (REC) through an application to the National Research Ethics Service (NRES).

Data from all waves of ELSA are available as public use datasets from the UK Data Service. Findings from each wave of ELSA are presented in substantive reports (Marmot et al. 2003, Banks et al. 2006, Banks et al. 2008, Banks et al. 2010, Banks et al, 2012, Banks et al, 2014, Banks et al, 2016). Further analyses and publications are listed on the ELSA website (www.ifs.org.uk/elsa).

ELSA is designed to be representative of individuals living in private residential accommodation in England aged 50 years and older. The original sample frame for the study was the Health Survey for England (HSE), an annual survey, itself representative of the English population. To ensure the sample remains representative of the older population, refreshment samples of particular age groups have periodically been added to the study. Data are collected every two years by computer assisted personal interviews (CAPI) in the participants' home, and a paper self-completion questionnaire is also given to respondents to complete in each wave. A nurse visit/health examination is carried out every four years to measure biomarkers. To date there have been seven waves of data collection: wave 1 (2002/3), wave 2 (2004/5), wave 3 (2006/7), wave 4 (2008/9), wave 5 (2010/11), wave 6 (2012/13) and wave 7 (2014/15), with nurse/health examination data collected in wave 2, wave 4 and wave 6.

As in previous waves, the topic areas covered in wave 7 were: individual and household characteristics; physical, cognitive, mental and psychological health; social participation and social support; housing and consumption; work, pensions, income and assets; expectations for the future; and effort and reward. An objective measure of health and functioning was also collected by means of a timed walk and an objective measure of hearing impairment was collected by means of a HearCheck screening test. New topics at wave 7 included a revised module on dental health, expanded questions on self-reported hearing, child benefit receipt if in high income tax charge, a broader range of cognitive function assessments, revised questions on perceptions of social care, and new questions on care provided to others.

A total of 9,666 main interviews were completed at wave 7 across five cohorts. This included a total of 8,249 interviews (85%) conducted with core members. Specifically,

[3] Department of Health, Department for Transport, Department for Work and Pensions, and the Office for National Statistics funded wave 7.

4,894 interviews were with Cohort 1 core members from the original wave 1 sample, 787 were with core members from Cohort 3, 1,606 were with core members from Cohort 4, 661 were with core members from Cohort 6, and 301 were with core members from Cohort 7 (the wave 7 refresher cohort). The remaining 1,417 interviews (15%) were with partners of core members (defined as either core, young, old or new partners).

1.2 Content of this report

This report describes the design and implementation details of wave 7 of ELSA, carried out between June 2014 and May 2015. It begins by providing an overview of the sample design adopted at each wave of the ELSA study including a detailed sample design of the wave 7 cohort in Chapter 2. The content and structure of wave 7 survey data collection instruments is given in Chapter 3. Information on the wave 7 fieldwork procedures are outlined in Chapter 4, and the wave 7 response rates are presented in Chapter 5. Chapter 6 describes the derivation of the longitudinal and cross-sectional weights for use with the wave 7 core dataset. Finally Chapter 7 describes data preparation procedures.

2 Sample design

Beginning with an introduction to the ELSA sample design, this chapter describes the use of the Health Survey for England (HSE) as a sampling frame for ELSA (Section 2.2). The sampling and eligibility criteria relating to each Cohort is discussed in separate sections (Section 2.3 for Cohort 1, Section 2.4 for Cohort 3, Section 2.5 for Cohort 4, Section 2.6 for Cohort 6, and Section 2.7 for Cohort 7).

2.1 Introduction to sample design

The original ELSA wave 1 sample (Cohort 1) was designed to represent people aged 50 and over (born on or before 29th February 1952) and their partners, living in private residential addresses in England. The wave 1 sample was selected from households that previously responded to the Health Survey for England (HSE) in 1998, 1999 and 2001[4]. The ELSA wave 1 interview took place in 2002-03, providing the baseline for the study.

Age-eligible sample members who responded at wave 1 were renamed 'Cohort 1 core members' to distinguish them as the core element of the continuing ELSA sample. Interviews with Cohort 1 core members and their partners were attempted every two years following wave 1 (wave 2 in 2004-05, wave 3 in 2006-07, wave 4 in 2008-09, wave 5 in 2010-11, wave 6 in 2012-13, and wave 7 in 2014-15).

To ensure the study remained representative of those aged 50 and over, new, 'refreshment', cohorts were added at wave 3 (Cohort 3), wave 4 (Cohort 4), wave 6 (Cohort 6), and wave 7 (Cohort 7). The Cohort 3 sample was selected from the HSE 2001-2004 survey years, the Cohort 4 sample from HSE 2006, the Cohort 6 sample from HSE 2009, 2010 and 2011, and the Cohort 7 sample from HSE 2011 and 2012.

- At wave 3, a 'refreshment' cohort of people entering their 50s (born between 1st March 1952 and 29th February 1956) was introduced (referred to as Cohort 3). At wave 3, the youngest core members from Cohort 1 were aged 54, so Cohort 3 ensured the study still covered ages 50 to 54. The sample used to form Cohort 3 was selected from four survey years of the HSE (2001 to 2004).
- At wave 4, a cohort of people aged 50-74 (born between 1 March 1933 and 28 February 1958) was introduced (referred to as Cohort 4). The sample used to form Cohort 4 was selected from HSE 2006. Cohort 4 comprises a "top-up" of people aged 52-74, and a refreshment sample of people aged 50-51.
- At wave 6, a further 'refreshment' cohort aged 50-55 (born between 1st March 1956 and 28th February 1962) was introduced to ensure that those in their

[4] HSE 2000 was used to select a sample of individuals for questionnaire testing and piloting

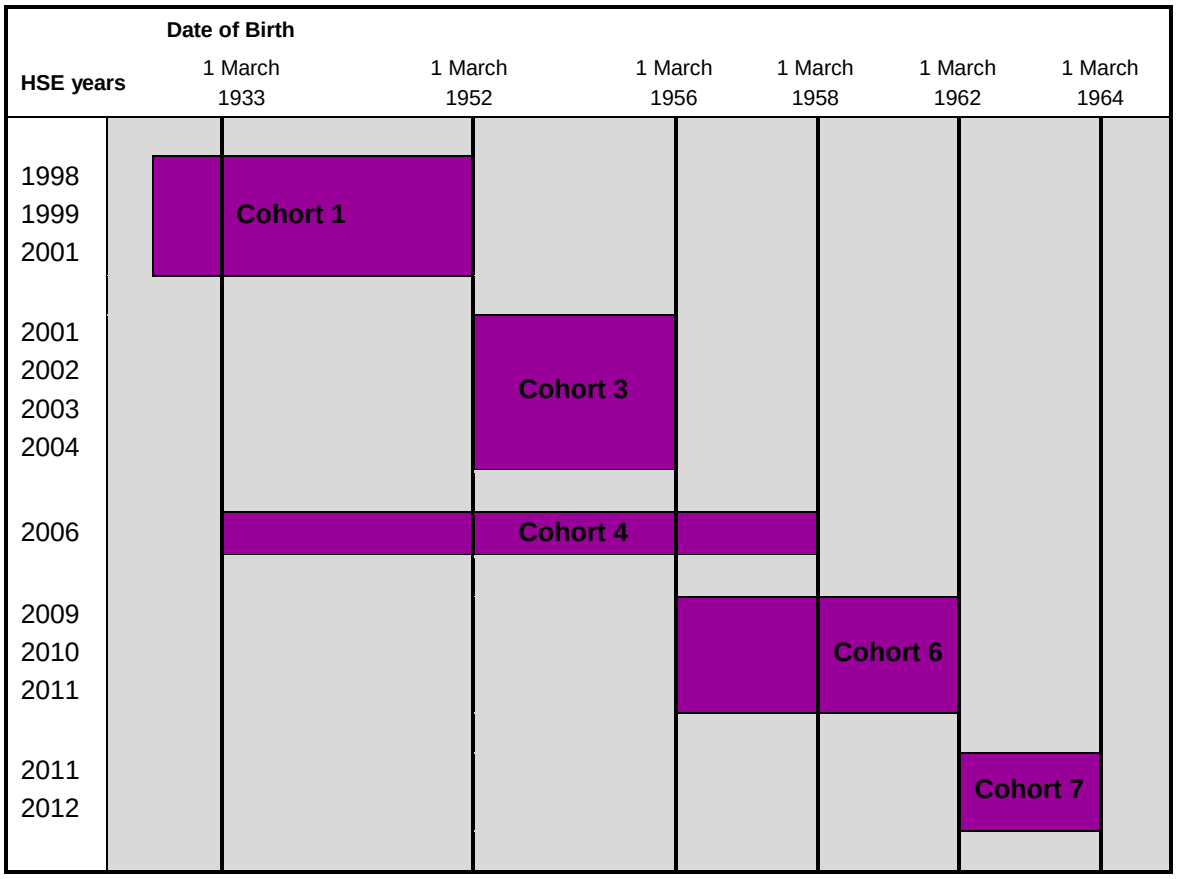
early 50s remained represented in the overall ELSA sample. The Cohort 6 sample came from three later HSE survey years (2009, 2010 and 2011).

- At wave 7, a 'refreshment' cohort aged 50-51 (born between 1st March 1962 and 28th February 1964) was introduced. The Cohort 7 sample again ensured that younger age groups remained represented in the ELSA sample.

There is some overlap between the cohorts in terms of age, but each cohort is still viewed as a distinct group recruited from different years of HSE and introduced to ELSA at different times. Age-eligible sample members from each new cohort who are interviewed at their first wave are referred to as 'core members'[5]. Partners of core members from each cohort are also eligible for interview, but the main focus is on core members as they represent the sampled population of interest.

A summary of the ELSA sample design is shown in Figure 2.1[6]. More detail on the sample selection procedure for each cohort is given in the rest of this chapter.

Figure 2.1 ELSA sample design



[5] The Cohort number was chosen to reflect the wave in which the new sample was added. There is no "Cohort 2" or "Cohort 5" in ELSA because no new sample was issued at wave 2 or at wave 5.

[6] Cohorts 1 and 3 overlap as a number of Cohort 1 younger partners (sampled from HSE 2001) were now aged over 50 in wave 3 and were reclassified as Cohort 3 core members if successfully interviewed at wave 3.

2.2 HSE as a sampling frame

The HSE is an annual cross-sectional household survey that collects a wide range of health data and biometric measures. Each of the main HSE samples is designed to be representative of the English population living in private residential addresses, sampling from the Postcode Address File (see Taylor et al, 2007 for further details[7]). Interviewing for HSE is continuous and the sample is issued to interviewers evenly throughout the year. The HSE response rates for households and individuals are presented by survey year in Table 2.1 (HSE years used as a sampling frame for ELSA are shown by grey shading).

Table 2.1 HSE response rates

Response rate	**HSE year (1998-2004)**						
	1998 %	1999 %	2000 %	2001 %	2002 %	2003 %	2004 %
Co-operating households	74	76	75	74	76	73	72
Individual response	69	70	68	67	67	66	66
	HSE year (2005-2011)						
	2005 %	2006 %	2007 %	2008 %	2009 %	2010 %	2011 %
Co-operating households	74	68	66	64	68	66	66
Individual response	64	61	58	58	61	59	59
	HSE year (2012-2015)						
	2012 %	2013 %	2014 %	2015 %			
Co-operating households	64%	64%	62%	60%			
Individual response	56%	58%	55%	57%			
Note: Households described as 'co-operating' are those where at least one eligible person was interviewed.							

Household response rates ranged from 76% in 1999 and 2002 to 60% in 2008 with a recovery to between 66% and 68% in subsequent years; individual response rates from 70% in 1999 to 55% in 2014 with a slight recovery to 57% in 2015. Further details about the HSE are available from its Technical Reports (Erens and Primatesta, 1999; Erens, Primatesta and Prior, 2001; Prior et al., 2003; Sproston and Primatesta, 2003; Sproston and Primatesta, 2004; Sproston and Mindell, 2006; Craig and Mindell, 2008; Craig and Hirani, 2010; Craig and Mindell, 2011; Craig and Mindell, 2012; Craig and Mindell, 2013; Craig and Mindell, 2014; Craig, Fuller and Mindell, 2015; Neave, 2016).

Around 8,000 adult respondents are typically included each year in the HSE, around 85% per cent of whom agree to a follow-up visit by a nurse. Different annual rounds of the survey focus on different health outcomes (e.g. cardiovascular disease in 2003, 2006 and 2011) or on different subgroups of the population (e.g. ethnic minorities in 1999 and 2004, those living in institutions in 2000, and people aged 65 and over living in private residential addresses in 2005).

2.3 Cohort eligibility

Table 2.2. presents a summary of the eligibility criteria for selection as a core member for each of the five cohorts that were interviewed in ELSA wave 7. This outlines the HSE sample years from which the samples were drawn, the age criteria for selection, and other eligibility criteria.

Table 2.2 Core member cohort 1-7 eligibility criteria for wave 7

	Wave 1 (Cohort 1)	Wave 3 (Cohort 3)	Wave 4 (Cohort 4)	Wave 6 (Cohort 6)	Wave 7 (Cohort 7)
Cohort code	C1CM	C3CM	C4CM	C6CM	C7CM
HSE sample frame years	1998, 1999, 2001	2001-2004	2006	2009-2011	2011-2012
Original cohort age eligibility	born on or before 29th February 1952	born between 1 March 1952 and 29 February 1956	born between 1 March 1933 and 28 February 1958	born between 1 March 1956 and 28 February 1962	born between 1 March 1962 and 28 February 1964
Original cohort other eligibility criteria	Living in a private residential household at the time of HSE and still living in a private residential address in England at the time of first interview				
Wave 7 eligibility	Productive interview in original wave, and not since died, asked not to be revisited or moved out of Britain				

Table 2.3. presents the eligibility criteria for inclusion in the sample as a partner of a core member for each cohort.

[7] People living in institutions, who are likely to be older and, on average, in poorer health than those in private residential addresses are not covered by the HSE.

Table 2.3 Partner eligibility criteria for all cohorts at wave 7					
	Wave 1 (Cohort 1)	Wave 3 (Cohort 3)	Wave 4 (Cohort 4)	Wave 6 (Cohort 6)	Wave 7 (Cohort 7)
Cohort code	C1YP C1CP C1NP1-7	C3YP C3OP C3NP3-7	C4YP C4OP C4NP4-7	C6YP C6OP C6NP6-7	C7YP C7OP C7NP
HSE sample frame years	1998, 1999, 2001	2001-2004	2006	2009-2011	2011-2012
Young partner (YP)	Born after 29 February 1952	born after 29 February 1956	born after 28 February 1958	born after 28 February 1962	born after 28 February 1964
Old partner (OP)	N/A	born before 1 March 1952	born before 1 March 1933	born before 1 March 1956	born before 1 March 1962
Core partner (CP)	Individuals age-eligible to be core members who had been living within the household at the time of the HSE interview but not interviewed as part of original wave, so missing the baseline survey. Only approached at subsequent waves by virtue of them being the partner of a core member.				
New partner (NP)	Spouses or partners (of any age) of core members co-habiting at the time of the interviews at a particular wave who had joined the household since the original HSE interview.				
Wave 7 eligibility all	Productive interview in original wave, and not since died, asked not to be revisited or moved out of Britain If split from their core member partner, young, new or core partners only interviewed once after split				

The following sections provide more detail on the selection of sample members for each cohort.

2.4 ELSA Cohort 1

Age-eligible sample members were followed up from HSE 1998, 1999 and 2001 for ELSA wave 1 (cohort 1) in 2002-03. HSE 1998 and 2001 had a single general population ('core') sample that was nationally representative. The HSE 1999 sample design had two components: a 'core' sample that was nationally representative and a boost sample that represented ethnic minorities. The ethnic minority boost sample was discarded for ELSA sampling since there was insufficient resource to include a substantial sample to boost the representation of minority ethnic groups in ELSA.

2.4.1 2.4.1 Eligibility criteria at wave 1 (Cohort 1)

HSE households were only selected for ELSA wave 1 if they included at least one individual who was age-eligible and who, according to administrative records remained alive and gave permission to be re-contacted in the future. Age-eligibility meant being born on or before 29th February 1952, and living in a private household in England at the time of the HSE interview. A sample of 11,578 households containing 18,813 individuals was issued for interview in ELSA wave 1 and the process of selecting the wave 1 sample is summarised in the wave 1 technical report (Taylor et al. 2007).

2.4.2 2.4.2 Fieldwork eligibility checks and identifying new partners

The sample at wave 1 reflected the household composition as recorded at the time of HSE interviewing. However, the ELSA interview was conducted between one and four years after the HSE interview took place. No indication was given to respondents at the time of their HSE interview that they would be approached for the ELSA study at a later date. As a result, some changes were anticipated. There were three particular ways in which the status of an individual could change between HSE and ELSA wave 1:

- The status of the selected individuals needed to be checked during fieldwork to ascertain whether they were living in a private residential address in England at the time of the wave 1 interview. Any who had moved out of England or out of the private residential sector (e.g. into a care home or institution) were not interviewed.

- The status of young partners was also checked. Young partners were approached for interview if, at the time of the wave 1 interview, they were still living with an age-eligible sample member. Young partners identified from HSE who had split from the age-eligible sample member before the wave 1 interview were not followed up for interview.

- A further subgroup of individuals was identified during wave 1 fieldwork. New partners (C1NP1) were defined as the cohabiting spouses or partners of age-eligible sample members at the time of the first ELSA interview, of any age, who had joined the household since the HSE.

Identification of new partners during fieldwork meant that there were three types of individual who were eligible to take part in wave 1, as illustrated in Figure 2.2.

Figure 2.2 Eligibility criteria for wave 1 interview

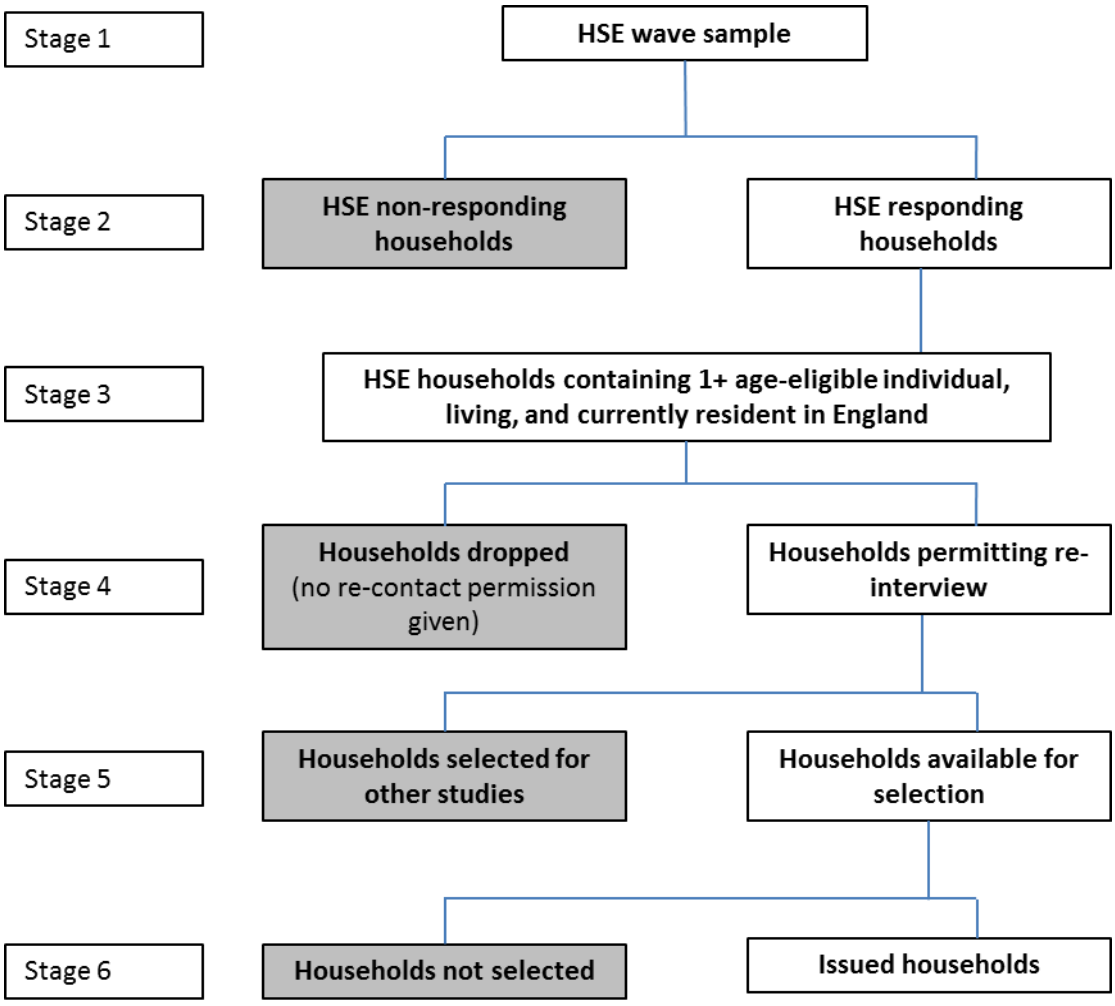
Sample members (C1SM) are individuals living within the household at the time of the HSE interview in 1998, 1999 and 2001, born on or before 29 February 1952 (age-eligible) and still living at a private residential address in England at the time of the wave 1 interview (2002-03). Those 11,391 individuals successfully interviewed in wave 1 were later renamed '**Cohort 1 core members (C1CM)**'.

Young partners (C1YP) are the cohabiting spouses or partners of eligible sample members, living within the household at the time of the HSE in 1998, 1999 and 2001, and still cohabiting with the sample member in wave 1. Cohort 1 young partners were born after 29 February 1952.

New partners (C1NP1) are the cohabiting spouses or partners of eligible sample members at the time of the first ELSA interview, of any age, who joined the household since the HSE interview.

Figure 2.3 below describes an example of the sample selection process used for selecting both the original sample for wave 1 and subsequent refreshment samples.

Figure 2.3 Example sample selection process for cohorts 1-7



2.4.3 2.4.3 Eligibility criteria for Cohort 1 at later waves

Only households with at least one interview with a core member at wave 1 were followed up at wave 2. However, eligible core members were not *issued* in wave 2 if all wave 1 respondents in the household had explicitly asked at the end of the last interview not to be re-contacted.[8]

Cohort 1 core members remained eligible for interview in subsequent waves unless they had since died, or had moved out of Britain. Individuals who moved out of the private residential sector (e.g. into a residential or nursing home) after their wave 1 interview were still approached for an institutional interview (developed for use at wave 2 onwards).

Several other categories of individuals were also eligible for an interview in each wave. These were the partners of Cohort 1 core members (core partners, younger partners, or new partners, as described in Figure 2.4.).

Figure 2.4 Summary of the Eligibility criteria for Cohort 1 at later waves

Core members (C1CM) are individuals living within the household at the time of the HSE interview in 1998, 1999 and 2001, born on or before 29 February 1952 and subsequently interviewed as part of wave 1, living in a private residential address in England. They were not eligible for follow-up interviews if they had since died, asked not to be revisited, or moved out of Britain.

Core partners (C1CP) are individuals, like core members, living within the household at the time of the HSE interview and born on or before 29 February 1952. However they were not interviewed as part of wave 1, so missed the baseline survey. As a consequence they were *only* approached at subsequent waves as the partner of a core member.

Young partners (C1YP) are the cohabiting spouses or partners of core members, living within the household at the time of the HSE, and still cohabiting with the sample member in wave 1. Young partners were born after 29 February 1952. Young partners who stopped living with their core member partner were only interviewed once following the split with their core member partner.

New partners (C1NP1, C1NP2, C1NP3, C1NP4, C1NP5, C1NP6, C1NP7) are the cohabiting spouses or partners of core members at the time of *the interview at a particular wave* who joined the household since the original HSE interview. As with young partners, new partners who stopped living with their core member partner were only interviewed once following the split with their core member partner.

2.5 ELSA Cohort 3

In the third wave, the aim was to supplement Cohort 1 with people born between 1 March 1952 and 29 February 1956 so that the ELSA sample would, in 2006-07, still

[8] Respondents who explicitly asked not to be re-contacted in the future were asked to re-join the study at the next wave if someone else in the household had implicitly consented to be re-contacted.

cover people aged 50 and over. The sources for the new recruits were the 2001-2004 HSE years.[9] As before, individuals were eligible if they had been living in a responding HSE household and were, at the time of the ELSA 2006-07 interview, still living at a private residential address in England. Partners were also interviewed. These people formed Cohort 3.

The process of selecting the Cohort 3 sample from the 2001-2004 HSE years is summarised in the wave 3 technical report (Scholes et al. 2009). There were 1,770 households from HSE waves 2001-2004 containing at least one age eligible person (50-54 years old) who had agreed to be re-interviewed. We selected 1,633 of these households. The final sample comprised 1,877 sample members and 941 partners.

2.6 ELSA Cohort 4

The selection criteria for Cohort 4 was people born between 1 March 1933 and 28 February 1958 (minimum age 50, maximum age 74). The HSE 2006[10] year was chosen because it had included a nurse visit with blood sample collection which would enable HSE data to be compared with the nurse visit at wave 4.

At the time of wave 4, in 2008-09, Cohort 1 core members were aged 56 and over, and Cohort 3 core members were aged 52-56. The Cohort 4 sample therefore had two main purposes; it firstly 'refreshed' the sample by adding the youngest age group back in (age 50-51), and secondly 'topped-up' the proportion of 52-74 year olds in the study (to help with prior wave attrition). Those aged 75 and over were not selected for Cohort 4 because the increased mortality associated with this group would make it difficult to utilise the longitudinal power of the study. Selection of those aged 50-74 also meant that most would not yet have made the transition into disability and dependence (core outcomes for longitudinal analysis).

There were 3,446 HSE households from wave 2006 containing at least one age eligible person (50-74 years old) who had agreed to be re-interviewed. We selected 2,116 of these households. The final sample comprised 3,242 age eligible individuals and 262 partners.

2.7 ELSA Cohort 6

At wave 6, in 2012-13, the aim was to supplement Cohort 1 with people born between 1 March 1956 and 28 February 1962 so that the ELSA sample in 2012-13 would still cover people aged 50-55. The wave 6 refreshment sample covered a period of 6 birth years and thus overlaps with w4 refreshment sample for those born between 1 March 1956 and 1 March 1958. The sources for the new recruits were the 2009, 2010 and first half of 2011 HSE years. As before, individuals were eligible if

[9] Only the general population ('core') sample was used from HSE 2004.
[10] For HSE methodology and documentation see Craig & Mindell. 2008.

they had been living in a responding HSE household, at least one household member had not refused future follow up contact to HSE and were, at the time of the ELSA 2012-13 interview, still living at a private residential address in England. Partners were also interviewed.

There were 10,799 households in total available to sample from (based on HSE 2009-11). 1,311 of these contained at least one age eligible person (50-55) who had agreed to be re-interviewed. We selected all the 1,530 available age eligible people in these households (all of whom had to have previously been interviewed themselves for HSE and agreed to follow-up). We also sampled 723 partners of these 1,530 people. The original selected sample therefore included 2,253 people. The issued sample after further checks and removal of anyone known to have died was comprised of 2,244 individuals, living in 1,310 households.

2.8 ELSA Cohort 7

At wave 7, the aim of the refreshment selection was to supplement Cohort 1 with people born between 1 March 1962 and 29 February 1964 so that the ELSA sample in 2014-15 would include people aged 50-51. The sources for the new recruits were the 2011 and 2012 HSE years. As in previous waves, individuals were eligible if they had been living in a responding HSE household, at least one household member had not refused future follow up contact to HSE and were, at the time of the ELSA 2014-15 interview, still living at a private residential address in England. Partners were also interviewed. These people formed Cohort 7. Cohort 7 core members and their partners represented 6% of all issued cases at wave 7.

544 age-eligible individuals who had agreed to be re-contacted were selected from HSE 2011-2012. Additionally, 326 partners of those selected were also included. The issued refreshment sample for wave 7 therefore included 870 cases.
The eligibility criteria for interview at wave 7 for members of Cohort 7 is described in Figure 2.5.

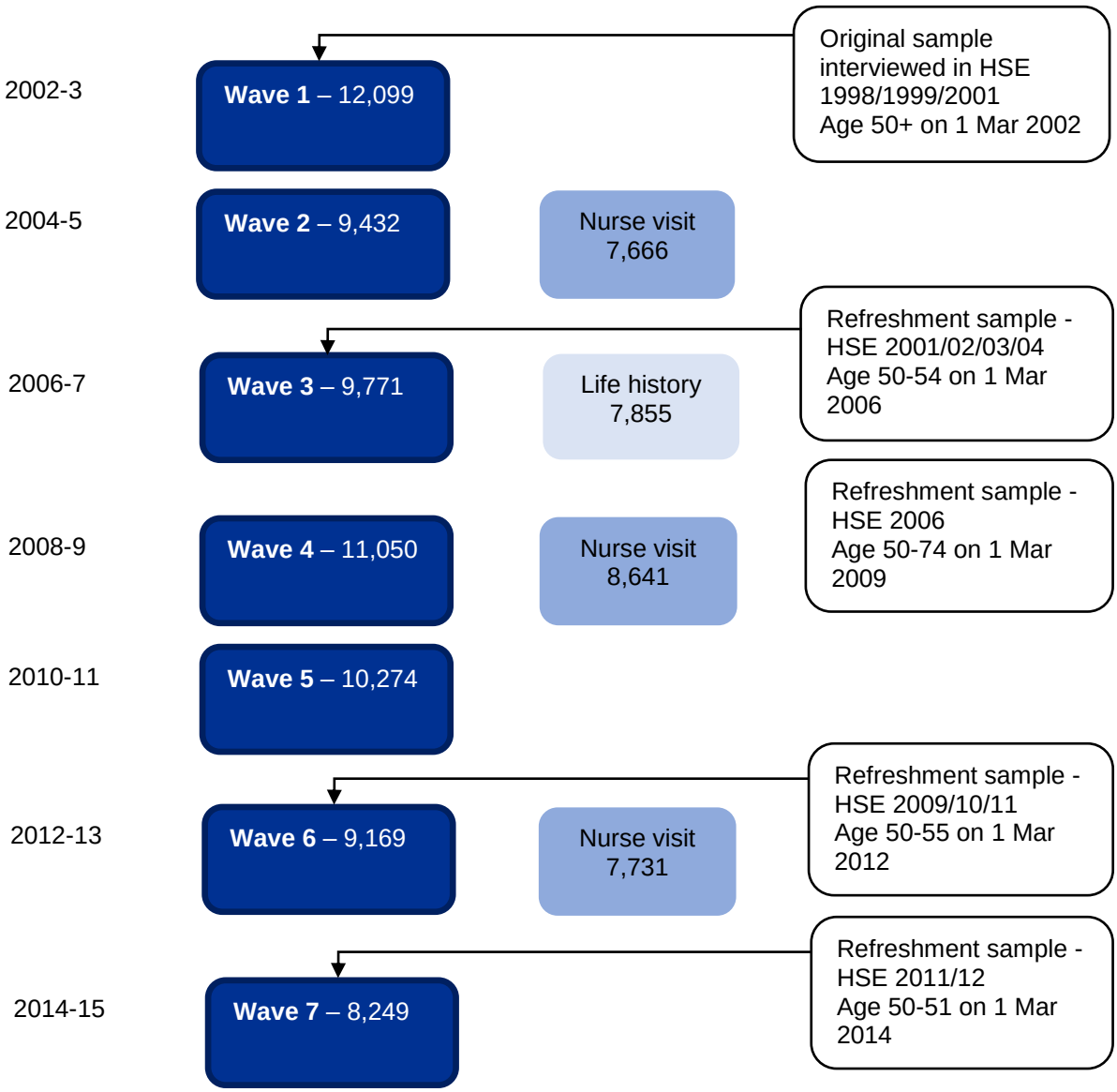
Figure 2.5 Eligibility criteria for wave 7 interview (Cohort 7)

Eligible Sample members (C7SM) are individuals living within the household at the time of HSE (2011, 2012) born between 1 March 1962 and 28 February 1964 (age-eligible), living in a private residential address in England at the time of the ELSA wave 7 interview. Those 301 successfully interviewed in wave 7 were designated '**Cohort 7 core members (C7CM)**'.

Young and old partners (C7YP/C7OP) are the cohabiting spouses or partners of eligible sample members, living within the household at the time of HSE, and still cohabiting with the eligible sample member at the time of the wave 7 interview. Young partners were born after 28 February 1964 and old partners were born before 1 March 1962.

New partners (C7NP) are the cohabiting spouses or partners of eligible sample members at the time of the wave 7 interview, of any age, who joined the household since the original HSE interview.

Figure 2.6. Summary of data collection in ELSA waves 1–7 (sample sizes are for core members of the sample)



3 Survey instruments

This chapter provides a detailed description of the survey instruments that are used in wave 7 of ELSA. These comprise the main interview, with shorter variants for proxy and institutional interviews; the self-completion interview, and the Telephone Refusers' Survey, a sub-sample interview for special circumstances was used where relevant. Nurse interviews are carried out at every other ELSA wave, most recently at wave 6, so there was no nurse interview conducted in wave 7.

3.1 Overview of data collection

The core ELSA questionnaire is administered at each wave by Computer Assisted Personal Interviewing (CAPI) in the participants' home using Blaise interviewing software. A shorter interview is attempted with a proxy informant if the core member is unable to respond because of physical or mental ill health, or cognitive impairment. Proxy interviews were also allowed at wave 7 where the respondent was unwilling to respond themselves but agreed that someone else (usually a spouse) could respond on their behalf. A further short version of the main core interview was used for sample members who had moved into an institution (such as a residential or nursing home).

A paper self-completion questionnaire is given to respondents to complete at the end of their CAPI interview. Where interviews are carried out concurrently, the self-completion questionnaire can be filled out by one person while the other completes sections of the main questionnaire which need to be answered in private.

One further instrument is used to collect information on a sub-sample of core members. The Telephone Refusers' Survey collects data on core members who have refused a previous wave of the survey or a face to face interview at wave 7. The data collected provides information for improving response rates and identifying any potential bias.

3.2 CAPI questionnaire

The ELSA wave 7 main interview covered a wide range of topics (see Figure 3.1). It was similar to the questionnaire used in previous waves, although every module was reviewed. Some questions were repeated exactly (e.g. to measure income and assets), some questions asked directly about change (e.g. to capture perceived changes in memory and concentration) and some were adapted to allow respondents to update or amend past responses (e.g. about work, pensions and specific health conditions).

3.2.1 3.2.1 CAPI questionnaire modules

Figure 3.1 provides an overview of the content of the main ELSA interview at wave 7. For further information see Appendix A which has a breakdown of interview content by wave of the survey.

Figure 3.1 Main interview modules wave 7

Household Demographics (HD) – collection or updating of demographic information about everyone living in the household, including sex, age and relationships to each other, and collection or updating of information about children. This module checks eligibility for ELSA of all current household members (including New Partners).

Individual Demographics (ID) – collection or updating of details about respondents' legal marital status, relatives and parents' age and (where relevant) cause of death, and number of living children.

Health (HE) – collection or updating of self-reported general health, chronic illness or disability; dental health, eyesight, hearing; specific diagnoses and symptoms; pain; difficulties with activities of daily living (ADLs); use of social care; health behaviours (e.g. smoking and physical activity); mental health ; urinary incontinence; falls and fractures; quality of healthcare respondents received for particular health conditions.

Social Participation (SP) – covers the use of private and public transport.

Work and Pensions (WP) – collection or updating of current work activities; current and past pensions; reasons for job change and health-related job limitations.

Income and Assets (IA) – assessment of the income that respondents received from a variety of sources over the previous 12 months: wages, state pensions, private pensions, other annuity income and state benefits; and collected financial and non-financial assets, receipt of inheritances and gifts. Couples decided who the respondent would be for a single financial unit, although it was suggested that the person who answered the IA module in wave 6 did so again in wave 7.

Housing (HO) – collection or updating of current housing situation (including size and quality), housing-related expenses, ownership of durable goods and cars; consumption including food in and out of home, fuel, durables, leisure, clothing and transfers. Only one eligible ELSA respondent in the household answered the module. Respondents decided themselves who the household respondent should be, but again, it was preferable that the person who answered the HO module in wave 6 answered this module again in wave 7.

Cognitive Function (CF) – measured different aspects of the respondent's cognitive function, including memory, speed and mental flexibility. Elements included were memory and concentration, word list recall, animal naming, backwards counting from 20, serial 7s, and naming objects and people.

Expectations (EX) – measured expectations for the future in a number of dimensions; financial decision-making and relative deprivation; future housing and care needs.

Psychosocial Health (PS) – measured how the respondent viewed his or her life across a variety of dimensions.

Effort and Reward (ER) – informal care giving & volunteering, assessed motivations behind voluntary work and caring for others; and the relationship between effort and reward; provision of care and use of respite services. New questions on care provided to others were integrated into existing questions in this section.

Final questions and consents (FQ) – collection of any missing demographic information and updating of respondents' contact details, stable address, details of any proxy informants and requests for permission to link to health and economic data from various administrative sources. An additional consent to link to primary health care records was collected in wave 7.

Walking ('gait') speed test (MM) – all respondents aged 60 years and over completing the main interview on their own behalf were eligible for the walking speed test, performed as part of the main ELSA interview. This involved timing how long it took to walk a distance of eight feet. Respondents began with both feet together at the beginning of the course. The interviewer started timing as soon as the respondent placed either foot down on the floor across the start line. They were asked to walk (not race) to the other end of the course at their usual speed, just as if they were walking down the street to the shops, and to walk all the way past the other end of the tape before stopping. Timing was stopped when either foot was placed on the floor across the finish line. Respondents were then asked to repeat the test by lining up their feet and walking back along the course, past the other end.

Hearing screener – eligible respondents aged 50 and over who completed a personal interview were administered the HearCheck screening test. This tests for the audibility of pure tone beeps as a measure of hearing impairment. The HearCheck played a sequence of beeps: 1,000 and 3,000 Hz frequencies at three different levels: at 1,000 Hz it screens at 20, 35 and 55 Db SPL (decibel sound pressure level); at 3,000 Hz it screens at 35, 55 and 75 Db SPL. The respondent indicated whether they heard the beep and a detection threshold was recorded.

Core self-completion questionnaire (administered by paper) (SC) – covering quality of life, social participation, mobility, control at work, life satisfaction, social networks, diet, alcohol consumption, time use and feelings; and use of digital technology.

3.2.2 3.2.2 Wave 7 CAPI questionnaire changes

This section provides an overview of the main questionnaire changes at wave 7. Overall, five modules were affected: health, income and assets, expectations, cognitive function, and consents Table 3.2 highlights the main changes for each module at wave 7 by listing the new topics introduced, the questions reinstated from earlier waves, and topics chosen for omission. Only the major changes are described here, but all changes (including those made to routing) can be found in the wave 7 documentation.

Table 3.2 Questionnaire changes at wave 7

Revised Module	New Topics	Topics reinstated from earlier wave(s)	Topics omitted at wave 7
Health	• *Dental health* • *Multiple sclerosis and Motor Neurone Disease added to HeDiab* • *E-cigarette use* • *Self-reported hearing*	• *Balance and dizziness*	• *Sleep* • *Quality of care arthritis, diabetes, heart disease* • *Nicotine replacement therapy*
Income and Assets	• *Universal credit and Personal independence payments*		• *Lifetime receipt of gifts and inheritances (unless not already asked)*
Expectations	• *Perception of social care*		
Cognitive function	• *Backward counting from 20* • *Serial 7s* • *Naming*	• *Animal naming* • *Self-rated memory*	• *Fluid intelligence*
Consents	• *Primary care data record linkage*		

The changes outlined in Table 3.2 are described below:

Health Module (HE)

To cater for increased interest in collecting information on hearing, new questions were asked on hearing difficulties, hearing in noise, quality of hearing care and hearing aids. To accompany these new questions, for the first time on ELSA a hearing test, the HearCheck Screening test, was carried out.

Multiple Sclerosis and Motor Neurone Disease have been added to the list of conditions individuals are asked about. A question on e-cigarette use has also been added along with instructions to exclude e-cigarettes at existing smoking questions.

Questions on dental health have changed, in addition to self-reported hearing. Cancer screening questions have been reworded slightly to clarify the type of screening test being referred to in follow-up questions.

Questions on sleep reinstated for wave 6 were removed for wave 7. Also removed were questions on the quality of care for arthritis, joint pain (in hips and knees), diabetes, and heart disease.

Income and Assets (IA)

Benefits questions were updated to include new benefits: Universal Credit, and Personal Independence Payment (including the car allowance known as motability). Checks were included on Child Benefit receipt amonghigher rate income tax payers. Finally, changes to ISAs and other account types are now reflected in the savings and investments questions.

Expectations (EX)

New questions on perception of social care were added to the existing social care questions, including questions measuring how much individuals know about care funding and planning for funding future care.

Cognitive Function (CF)

ELSA has asked a variety of questions to assess cognitive function over the years. Wave 7 aimed to combine the cognitive function questions so that the questions asked in ELSA at one time are closer to a medical assessment of cognitive impairment. It is believed that this set of questions in combination will give the best indication of early cognitive impairment.

In addition to the tests included in wave 6, self-rated memory, backward counting from 20, Serial 7s (subtracting 7 from one hundred) and naming (items and people by their description) have been added to wave 7. Animal naming questions were also reinstated after last being included in Wave 5. Questions used to measure numerical problem solving (fluid intelligence) added at wave 6, were omitted from wave 7.

Consents

Respondents were asked if they would be happy for their data to be linked to Primary Care Data records.

3.2.3 3.2.3 CAPI administration

The ELSA CAPI programme allows flexibility in administering the interview. Respondents could be interviewed individually, or interviewed at the same time (in a single session) using concurrent interviewing techniques, in households with more than one eligible respondent. In a concurrent session the same block of questions is asked alternately of each person. Concurrent interviews tend to be quicker than two separate individual interview sessions, and are generally more convenient for respondents.

In concurrent interviewing sessions, the following sections are asked of both respondents concurrently:

- Individual demographics (ID)
- Health (HE)
- Social participation (SP)
- Work and pensions (WP)

Although interviews tended to follow the same module order, interviewers could choose where some modules were positioned in the interview. For example, the walking 'gait' speed test could be administered at any time after the Health (HE) module, and it was possible for interviewers to skip the Income and Assets (IA) or Housing (HO) modules if it was more convenient to do them at another time.
Five sections formed the 'private modules' block:

- Cognitive Function (CF);
- Expectations (EX);
- Psychosocial Health (PS);
- Effort and Reward (ER);
- Final Questions (FQ); and
- Contact Block (CB)

Wherever possible, modules which form the "private block" were administered with no other household members present. If two respondents were being interviewed concurrently, while the first respondent was being asked the private block, the second responding individual was asked to fill in the self-completion questionnaire in a separate room. The two respondents then switched places. For existing sample members, if they were in a single person household they were sent the self-completion questionnaire in advance of the interview. Refreshment sample members were not sent the self-completion questionnaire in advance. If respondents had not completed the self-completion questionnaire before or during the interview, they could complete it after the interview and return the questionnaire by post.

Where households contained two or more eligible individuals one person was nominated as the informant for the household demographics section. Similarly, one individual was asked to be the informant for the income and assets module on behalf of each benefit unit (BU). Benefit and financial units are defined in Figure 3.2.

Figure 3.2 Benefit and financial units

Benefit units (BUs) – are defined from individuals within the same household using their age and marital status. A BU is a single adult or couple plus any dependent children. A couple is defined as two adults that are married or living as married. An adult is defined as an individual who is aged 19+ or aged 16-18 and married. Any children are included in the BU with the appropriate adult parent. Many of the financial derived variables in the ELSA dataset are derived at the BU level. The IA section, however, is asked once per **financial unit**.

Financial units – are equivalent to BUs with the exception that couples who keep their finances separate are defined as two financial units and each answers the IA module on their own behalf. Hence the BU can be different to a financial unit. For couples that keep their finances separate, income and assets information reported

separately by each member of the couple is combined to obtain a BU definition of income and wealth.

The interview ended with a request for confirmation or amendment of consent to obtain health and economic data from administrative sources. Participants were asked to provide their National Insurance number and give permission for the ELSA team to link their survey data to official records held by the Department of Work and Pensions (DWP) and Her Majesty's Revenue and Customs (HMRC) (i.e. National Insurance contributions, welfare and benefit receipt, tax credit claims, tax records, savings and pensions).

3.3 Self-completion questionnaire

A paper self-completion questionnaire is also given to respondents to complete. If there is only one existing sample member within a household, self-completion questionnaires are sent by post for the sample member to complete in advance. Where more than one existing sample member is in a household, self-completion questionnaires are given at the time of interview, and completed while the other sample member is answering the 'private block' questions in the main questionnaire. Refreshment sample members are given their self-completion questionnaire at the end of their CAPI interview. Proxy interviewees do not complete a self-completion questionnaire. The self-completion asks about the respondent's quality of life, social participation, control at work, life satisfaction, social networks, experience of growing older, diet, alcohol consumption, time use, and use of digital technology.

3.3.1 3.3.1 Self-completion questionnaire changes

The majority of questions remained unchanged from wave 6, but several changes were made to the main self-completion questionnaire in wave 7 as detailed below. In addition, the separate sexual activity self-completion questionnaire included in wave 6 was not included in wave 7.

The following questions were omitted for wave 7:

- The ease or difficulty of using transport to get to a range of places.
- Number of hours of TV respondents watch during the week or at weekends.
- Statements about how respondents feel about life in general.

Questions re-instated from earlier waves were:

- Neighbourhood perceptions measuring feelings about the respondent's local area, last included in wave 3.
- Questions asking respondents to identify their own perceived age, and the age they would like to be; as well as asking for responses to statements regarding experiences and perceptions of old age. These questions were last included in wave 2.

3.4 Variants of the main ELSA interview

The main variants of the ELSA interview are discussed in this section. All of these types of main interview are considered to be "productive" interviews, therefore in wave 7, as in wave 6, institutional interviews were eligible for inclusion in the response rate calculations in Chapter 5.

3.4.1 3.4.1 Partial interviews

Some respondents do not manage to complete the whole interview (e.g. due to time constraints or interruptions). If respondents get as far as the Work and Pensions (WP) module but do not answer all the questions to the end of the interview it is deemed a "partial interview". The implication of this for analysis is that there were varying totals of respondents for items depending on the position of the item in the questionnaire and the number of partial interviews accrued at that point.

3.4.2 3.4.2 Proxy interviews

If cognitive impairment, physical or mental ill health prevented a respondent from conducting a face-to-face interview, a proxy interview was attempted (i.e. asking someone else to do the interview on behalf of the respondent). Likewise if the respondent was away in hospital or temporary care throughout the whole fieldwork period, a proxy interview was permitted. New guidance regarding the use of proxy interviews was introduced at wave 4 and continued at Waves 5, 6 and 7. Interviewers could now offer a proxy interview for those who were extremely reluctant to complete the interview themselves.

The proxy informant (i.e. the person who answered on behalf of the eligible respondent) was any adult aged 16 and over who knew enough about the respondent's circumstances to be able to provide information about them. Where possible, a close family member such as a partner, son or daughter was approached, but other people such as care workers sometimes fulfilled this role.

Where the respondent lacked mental capacity a new form was introduced so that a consultee could declare whether the respondent would have wanted to take part if they were able. This had to be completed before a proxy interview could take place for respondents who could not take part because they lacked mental capacity.

Table 3.3 lists the modules included in the proxy interview. Proxy respondents were asked to provide information but were *not* asked to second-guess more subjective information such as attitudes, perceptions of ageing or expectations of the future. Only respondents conducting a full/partial main interview in person were given the self-completion questionnaire.

Table 3.3 Proxy interview modules

Module	Description

HD*	Household Demographics
ID	Individual Demographics
HE	Health (variant on main module)
WP	Work and Pensions
IA*	Income and Assets
HO*	Housing
FQ	Final questions and consents
CB	Contact block

All proxy interviews included questions on individual demographics, health, work and pensions and final questions/consents. However, the three modules asterisked in Table 3.3 were asked only in specific circumstances:

- In cases where there was at least one other person in the household eligible for interview, the Household Demographics and Housing modules would already be completed, and would therefore not be asked of a proxy informant. In cases where there was no-one else in the household eligible for interview, these two sections were completed as part of the proxy interview.
- In cases where there was no-one else in the financial unit eligible for interview, the proxy interview included the Income and Assets section. If one member of a couple needed a proxy interview, the other member was automatically asked the IA section on behalf of the couple when they were interviewed in person. The question normally included, about whether or not they share finances, was not asked. If both members of a couple needed a proxy interview, the IA section was only asked in one of their proxy interviews, and referred to both of their finances. For single people requiring a proxy, the IA section was always asked as part of the proxy interview.

3.4.3 3.4.3 Institutional interviews

Core members who move into an institution (care or nursing home) after their first ELSA interview are still eligible for interview. The institutional interview has the same modules as the core wave 7 interview, and the content remains broadly the same for non-proxy and proxy institutional interviews.

Table 3.4 Institutional interview modules	
Module	**Description**
HD	Household Demographics
ID	Individual Demographics
HE	Health (variant on main module)
WP	Work and Pensions
IA	Income and Assets
HO	Housing
FQ	Final questions and consents
CB	Contact block

Questions asked in the Income and Assets module and the Housing module are influenced by whether the person in the institution has a partner who lives with them, and whether they share finances or not (see below). Additional questions about partners at the start of the institutional interview control which modules are asked. For single people in an institution the same modules appear on-route as in a normal interview, but with fewer questions in Income and Assets and Housing.

The social care questions introduced at wave 6 were designed for those living in their own homes so were not asked of those living in institutions.

Structure of Institutional Interview for couples:

	Questions asked of spouse at home	**Questions asked of spouse in institution**
Partners who share finances	All IA All HO	No IA HO = consumption only
Partners who have separate finances	All IA All HO	All IA HO = consumption only

If both members of the couple are in an institution the following applies:

	Questions asked of spouse interviewed first in institution	**Questions asked of spouse interviewed second in institution**
Partners who share finances	All IA HO = reduced set of questions	All IA HO = reduced set of questions
Partners who have separate finances	All IA HO = reduced set of questions	All IA HO = reduced set of questions

3.5 Telephone Refusers' Survey

A further instrument is used to collect information on a sub-sample of core members. The Telephone Refusers' Survey is a short telephone interview that has been included at each wave since wave 3 to collect data on core members of the existing sample who refused a face to face interview in the current wave. Participants were contacted to take part in the refuser's survey if they refused a face to face interview at wave 7 and the interviewer had not indicated they should not be recontacted this wave or recorded specific circumstances in the household, such as a recent bereavement or terminal illness, that would make recontact inappropriate. Cases were excluded if they had been included in the refuser survey sample at waves 5 and 6. The data collected from the refuser's survey provides important information for improving response rates and identifying any potential bias.

The content of the telephone interview has remained the same over the waves, collecting a small amount of information in an interview of around 10 minutes in length.

The telephone survey is a key component of the ELSA strategy for retaining respondents. Overall, it has three main purposes:

- To ascertain why people refuse to continue participating in ELSA;
- To give an indication of how to most effectively encourage people to come back to ELSA in the future;
- To know more about people who do not take part, to work out if their omission is biasing ELSA results in any way.

The interview contains ten questions related to health, work and benefits, marital status, and accommodation. Most of the questions are taken directly from the main face-to-face interview, and were chosen because they were quick and simple and covered the key areas of interest. There is a respondent incentive for completing the telephone interview, and no proxy interviews were accepted.

A total of 804 telephone interviews were conducted at wave 3 and this increased to 1,077 at wave 4, then 1,153 at wave 5, 387 at wave 6 and 150 at wave 7.

3.6 Interview timings

There were a total of 9,660 productive interviews in wave 7, including 8,223 full and 27 partial interviews with core members in wave 7. The overall median interview length was 105 minutes. Single person interviews had a mean length of 83 minutes, and concurrent interviews with two participants had a mean length of 134 minutes.

4 Fieldwork procedures

Fieldwork for the seventh wave of ELSA began in May 2014 and finished in May 2015. Eligible individuals were sent an advance letter inviting them to participate. Interviewers then visited the households or telephoned in advance to set up the interviews.

This chapter provides background information about the fieldwork procedures employed in wave 7. This includes interviewer training (Section 4.1); piloting and dress rehearsal stages (Section 4.2); the mainstage fieldwork design (Section 4.3) and fieldwork materials (Section 4.4). Further sections include the follow-up rules (Section 4.5); how deaths were identified (Section 4.6); tracing procedures adopted if respondents could not be contacted (Section 4.7); and methods used to encourage response (Section 4.8).

4.1 Interviewer training

280 interviewers worked over the course of wave 7. Before starting work, all new interviewers and those who had not worked on wave 6 attended a one day in-person briefing run by a researcher. Interviewers who had worked on wave 6 attended a half day briefing run by a researcher. The briefings covered all fieldwork procedures including training on how to administer the assessments (walking speed, cognitive function and HearCheck test). The briefings also fully explained the documents needed for the study and provided an introduction to all questions within the CAPI interview. Interviewers were also provided with written study guidelines to reinforce their learning from the briefing.

4.2 Piloting/Dress Rehearsal

A separate pilot/dress rehearsal sample has been retained since the start of ELSA that can be returned to at each wave of the study. This sample is only used for pilots and dress rehearsals. Most of the sample comprises respondents who were living in a household that participated in the Health Survey for England (2000) and subsequently agreed to be a part of the ELSA pilot sample. As with the main ELSA sample, refreshment samples drawn from HSE dress rehearsal participants were added to the pilot/dress rehearsal sample in waves 3, 6 and 7. For wave 7, 123 new cases were added to the pilot/dress rehearsal sample, aged between 50 and 80, drawn from the HSE dress rehearsals in 2010, 2011, 2012 or 2013.

A wave 7 pilot was conducted in July 2013 to test new questions and new combinations of questions. Cognitive function and Self-reported hearing questions were tested along with two possible hearing tests: HearCheck, an audiometric test, and Digit Triplet Test (DTT), a 'speech in noise' test. A combination of cognitive

questions were tested to check for increased respondent burden. Those not considered too sensitive within a short pilot questionnaire were piloted. Sensitive questions were included in the Dress Rehearsal questionnaire where the full ELSA wave 7 questionnaire was tested.

104 panel members were contacted in the pilot, of which 82 individuals from 59 households took part. 48 participated in the HearCheck hearing test and 34 took part in the Digit Triplet Test hearing test. A number of changes were recommended as a result of the pilot including that fluid intelligence questions be removed from the cognitive function module, and the HearCheck test be used.

An ELSA dress rehearsal was carried out in January and February 2014 in order to assess how well the questionnaire functioned with the new content planned for inclusion at Wave 7. The aim of the Wave 7 dress rehearsal was to test new questions or new combinations of questions in the context of the full content of the ELSA questionnaire. The more significant changes to the questionnaire that were included in the Wave 7 dress rehearsal were:

- Cognitive function
- Dental Health
- Self-reported hearing
- Hearing test
- Social Care Funding expectations

As with the pilot, the dress rehearsal was used as an opportunity to discuss with respondents how they preferred to be contacted by NatCen in relation to their participation in ELSA. The dress rehearsal therefore also included questions about communication with NatCen.

The sample for the Wave 7 dress rehearsal was taken from the ELSA pilot/dress rehearsal panel and included refreshment cases taken from the Health Survey for England dress rehearsal panel. For the Wave 7 dress rehearsal, 147 panel members were contacted, of which 93 individuals from 63 households took part.

4.3 Mainstage Fieldwork design

Mainstage fieldwork lasted between May 2014 and May 2015, and consisted of six tranches of interviews, and a seventh tranche for reissued cases.

4.3.1 4.3.1 Contact procedures

Interviewers made contact with respondents by telephone or face to face to arrange an interview. Face to face contact was always used if a respondent was aged 85 or

over, was unproductive at last wave of ELSA or was a refreshment sample member, to increase productive interview numbers.

4.3.2 4.3.2 Main fieldwork

Fieldwork for Wave 7 was split into six tranches to balance interviewer workload. The first tranche began on the 26th May 2014. The main fieldwork for each tranche lasted 6 weeks. A total of 8,137 households and 12,768 individuals were issued at wave 7. Following this, unproductive interview cases were assessed and reissued in a final seventh tranche where respondents were likely to be persuaded to give an interview.

4.3.3 4.3.3 Reissue fieldwork and refuser's survey

Reissued cases included respondents who gave soft refusals and respondents who had not yet been contacted. A total of 36 cases were reissued, resulting in 14 productive interviews.

The telephone refuser's survey was carried out in January 2015. 63 households were contacted to take part in the Telephone Refuser Survey, with 57 individuals completing the interview. Sample members who agreed to re-join the face to face sample were contacted for an interview in March to May 2015.

4.4 Fieldwork materials

Interviewers keep a number of administrative records, such as the Address Record Form (ARF) to enable changes in address and circumstances to be recorded. During the interview, in addition to the CAPI, interviewers used the following materials:

- Show cards
- Cognitive function record booklet
- Timed walk record card
- A measuring tape and stopwatch (for the timed walk)
- HearCheck hearing test record sheet
- HearCheck screener device and cardboard ear cups.

Consent forms, a letter for consultees, and a declaration form and leaflet for stable contacts and proxies are also used where required.

4.5 Consents

At the end of the interview, cohort 7 members joining ELSA were asked whether their data can be linked to records held by the Health and Social Care Information Centre, the Department for Work and Pensions (DWP) and HM Revenue and Customs (HMRC). New for wave 7, all respondents were asked whether they would consent to their data being linked to NHS primary care records.

4.6 Fieldwork follow-up rules

4.6.1 4.6.1 Cohorts 1, 3, 4 and 6 Core Members

There were four main reasons why interviewers did **not** follow-up members from Cohorts 1, 3, 4 or 6 at wave 7.

- Deaths
- moves out of Britain
- living in a household where all eligible respondents refused to be re-contacted immediately after their first ELSA interview (note – these households have been excluded from the issued sample for all subsequent waves).
- If young or old partners who had once lived with the core member had already been interviewed since the split.

At each wave, decisions about whether to issue individual cases are made by the survey team. For example, some cases were not issued at wave 7 if they had:

- not taken part in two or more consecutive waves of ELSA
- asked not to be contacted again
- moved from their address at a previous wave and could not be traced

It is important to note that the fieldwork response calculations in Chapter 5 are based only on those cases issued to field interviewers at wave 7. In contrast, study response rates only exclude those who have died, moved out of Britain or into an institution. All other core members are considered eligible in the study response rates even if they did not have the opportunity to be interviewed at wave 7 (i.e. through non-issue to field).

4.6.2 4.3.2 Cohort 7 refreshment sample

Wave 7 represents the first attempt at face to face contact since their HSE interview in 2011 or 2012. The main reasons why interviewers did **not** follow-up age-eligible sample members from HSE 2011 or 2012 were:

- deaths
- no longer living at a private residential address
- no longer living in England
- had not agreed to be re-contacted after their HSE interview[11]

4.6.3 4.3.3 Partners

A cohabiting spouse or cohabiting partner of a potential cohort 7 Core Member was also eligible for interview and could be any age. If the new partner had moved into the household since the Core Member's HSE interview, the new partner was eligible for interview. If the household had split, only the potential Core member was eligible if their new address was in England.

[11] Households where all age-eligible sample members refused re-contact after HSE were omitted from the issued sample. However, if one age-eligible sample member refused re-contact after HSE but another age-eligible person in the household hadn't, the household was still issued to interviewers (and all age-eligible persons remained eligible for interview).

4.7 Deaths

At the time of publication, data on deaths at wave 7 was not available. The process for reporting deaths to the survey team is through two methods. All participants who gave their permission in HSE or ELSA are 'flagged' with the Health and Social Care Information Centre (previously by the National Health Service Central Register (HSCIC) at the Office for National Statistics). This register keeps track of registrations with General Practitioners (GPs) but also with official death registrations and with people who leave the UK health system. Most of the deaths are confirmed through the NHSCR. In addition, some deaths are reported to NatCen by relatives of ELSA participants and by interviewers who learn of the deaths when trying to contact the household.

4.8 Tracing movers

Procedures are in place to track respondents who move between waves to ensure that the more mobile sections of the ELSA sample are not lost.

If the whole household had moved since the wave 6 interview, or a core member who had consented to be re-contacted in future waves had moved away, interviewers were directed to try the following possible routes to trace movers:

- attempt telephone contact with the respondent
- contact with neighbours/addresses opposite
- give mover letter to the present occupier
- contact stable address by phone, visit or letter (via Brentwood Office)
- contact any proxy nominee by phone, visit or letter (via Brentwood office) if appropriate

A 'mover letter' was offered if interviewers identified a member of the public who was aware of the core member's new address but was reluctant to reveal it to the interviewer. This letter, which was forwarded with a pre-paid envelope by the member of the public who had been identified, asked the core member to contact the office with their new address.

4.9 Other methods to encourage response

A number of different approaches were used to encourage participation among the issued sample, including the measures outlined in Figure 4.1.

Figure 4.1 Methods of encouraging response in wave 7

Each respondent was sent an advance letter and given an information leaflet. The advance letter offered an incentive payment in the form of a £20 gift card, provided at the end of the ELSA interview. Newsletters with an update on ELSA findings and the research team were given to existing sample members and refreshment sample respondents on the doorstep or at the end of their interview.

There were three advance letters: one for refreshment sample members, one for existing sample members, and one for existing sample members who did not respond at the last wave. Refreshment sample members were given a book of six first class stamps in their advance letter, as a token of appreciation and way of remembering the letter.

Where possible, respondents were assigned to the same interviewer in wave 7 as they had been in wave 6 or at previous waves.

Interviewers initially made contact by telephone with those who were successfully interviewed at the last wave of ELSA and were under 85. It was felt that these respondents were less likely to refuse at wave 7 and were therefore the best candidates for this method. Interviewers initially made contact by a personal visit with respondents aged 85 and over, respondents unproductive at their last interview, and all refreshment sample members. Interviewers were asked to make at least four calls at varying times of the day and on different days of the week (with at least one call at the weekend).

Interviewers were asked to return to the address a few weeks or months later if they found someone to be temporarily away, or if one of the core members was unwell at the time of their first visit.

In cases where households had split, interviews were sought at both the old and new households to ensure that all eligible individuals had a chance to respond.

An important part of the strategy for retaining respondents are Telephone Refusers' Interviews. These were conducted in order to better understand reluctance to continue participating in ELSA, and to understand how we might most effectively encourage people to come back to ELSA in the future. In addition, these interviews go some way towards dealing with non-response and collected key data on the respondents at this seventh wave.

4.10 Feedback to participants

Newsletters represent an important means of keeping in touch with respondents. The newsletter provided a preview of findings emerging from the previous wave of ELSA and sections on how ELSA has been used, comments from respondents, and an Ask an Interviewer section. A respondent website (www.natcen.ac.uk/elsa) included information about all seven waves to date. Participants were given the newsletter at the interview.

5 Response rates at wave 7

This section includes a summary of **field** and **study** response rates at each wave. The field response rates are based on core members issued at the start of fieldwork. The study response rates include all core members who were theoretically eligible for the study (i.e. not known to have died or moved out of Britain[12]). Not all those who are eligible for the study response rates are issued to field, as some, for example, were permanent refusers or had remained untraced over a number of waves. For all response rate measures, respondents were defined as those who gave a full or partial interview either in person or by proxy.

This chapter starts with an overview of achieved interviews at wave 7 (Section 5.1) and then outlines the eligibility criteria used for calculation of the response rates (Section 5.2). The main response rates for each cohort are presented in Sections 5.3 and 5.4, followed by information on self-completion response.

Fieldwork response rates in section 5.3 are based on the total issued sample at wave 7. These do not take into account core members who were not followed up for interview at wave 7 (for example because *all* responding members in the household refused to be re-contacted after their first ELSA interview - see Chapter 4).

Three different fieldwork response rates are presented:
1. ***Fieldwork household contact rate*** – calculated by dividing the number of households where the interviewer made contact with at least one member of the sample by the number of eligible households found during fieldwork.
2. ***Fieldwork cooperation rate*** – calculated by dividing the number of achieved individual interviews by the number of eligible individuals contacted by interviewers.
3. ***Individual response rate*** – calculated by dividing the total number of individuals with a wave 7 interview by the total number of individuals eligible for wave 7. In this case, eligibility meant those core members issued at wave 7 who were not known to have died or moved outside of Britain.

Section 5.4 presents the **study response rates**. These cover all eligible core members regardless of whether they were actually issued to field at a given wave. Core members are eligible in ELSA study response rates unless they were found to have died or moved out of Britain. Note that prior to wave 6 those who had moved into institutions were also treated as ineligible in study response rates. Since wave 6, they have been treated as eligible for the purpose of response rates.

[12] Note that in previous technical reports, those who had moved into institutions were considered ineligible and not included in response rates. At waves 6 and 7, they are included in response rates to be consistent with the approach taken in the waves 6 and 7 methods chapters.

Figure 5.1 illustrates the different types of wave 7 cross-sectional conditional response rates and Figure 5.2 illustrates the longitudinal conditional response rate for Cohort 1, both presented in Section 5.4.

Figure 5.1 Types of wave 7 cross-sectional conditional rates

Cohort	Notation	Meaning	Numerator	Denominator
Cross-sectional conditional rates				
Cohort 1	$RR_{7\|1}$	The (cross-sectional) W7 response rate conditional upon W1 response	Responding in W7	Eligible in W7 & respondent in W1
	$RR_{7\|6}$	The (cross-sectional) W7 response rate conditional upon W6 response	Responding in W7	Eligible in W7 & respondent in W6
Cohort 3	$RR_{7\|3}$	The (cross-sectional) W7 response rate conditional upon W3 response	Responding in W7	Eligible in W7 & respondent in W3
	$RR_{7\|6}$	The (cross-sectional) W7 response rate conditional upon W5 response	Responding in W7	Eligible in W7 & respondent in W6
Cohort 4	$RR_{7\|4}$	The (cross-sectional) W7 response rate conditional upon W4 response	Responding in W7	Eligible in W7 & respondent in W4
	$RR_{7\|6}$	The (cross-sectional) W7 response rate conditional upon W5 response	Responding in W7	Eligible in W7 & respondent in W6
Cohort 6	$RR_{7\|6}$	The (cross-sectional) W7 response rate conditional upon W6 response	Responding in W7	Eligible in W7 & respondent in W6
Cohort 7	$RR_{7\|0}$	The (cross-sectional) W7 response rate conditional upon W0 response	Responding in W7	Eligible in W7 & respondent in W0

Figure 5.2 Longitudinal response rate (wave 7)

Cohort	Notation	Meaning	Numerator	Denominator
Longitudinal conditional rates				
Cohort 1	$RR_{7,6,5,4,3,2\|1}$	The (longitudinal) conditional wave 7 response rate	Responding in W2,W3,W4, W5,W6 & W7	Eligible in W1,W2,W3, W4, W5, W6 & W7 & respondent in W1

5.1 Response to main interview

Table 5.1 shows the number of respondents at each wave. This includes those who had a proxy or partial interview or those interviewed in an institution[13]. At wave 7, a total of 9,666 interviews were conducted. Of these, 8,249 were with core members (4,894 Cohort 1; 787 Cohort 3; 1,606 Cohort 4; 661 Cohort 6; 301 Cohort 7).

Table 5.1 Number of respondents at each ELSA wave split by Cohort

ELSA Wave	Number of completed interviews							
	Core members (CMs)						Partners	CMs & Partners
	Cohort 1	Cohort 3	Cohort 4	Cohort 6	Cohort 7	Total	Total	Total
	(n)	(n)	(n)	(n)	(n)	(n)	(n)	(n)
Wave 1	11,391	N/A	N/A	N/A	N/A	11,391	708	12,099
Wave 2	8,781	N/A	N/A	N/A	N/A	8,781	652	9,433
Wave 3	7,535	1,275	N/A	N/A	N/A	8,810	960	9,770
Wave 4	6,623	972	2,291	N/A	N/A	9,886	1,164	11,050
Wave 5	6,242	936	1,912	N/A	N/A	9,090	1,184	10,274
Wave 6	5,659	888	1,796	826	N/A	9,169	1,432	10,601
Wave 7	4,894	787	1,606	661	301	8,249	1,417	9,666

Productive respondents in this section are defined as those who gave a full or partial interview either in person or by proxy (including those in institutions). Table 5.2 gives a breakdown of the number of interviews for core members and their partners. Core members form the main group for analysis of response rates (representing those aged 50 and over). Overall there were 8,249 interviews with core members across the five cohorts at wave 7.

Table 5.2 Sample type of wave 7 respondents by Cohort

Base: all respondents						*ELSA*
	ELSA Cohort					
	Cohort 1	Cohort 3	Cohort 4	Cohort 6	Cohort 7	Total
Row Description						
Core member	4,894	787	1,606	661	301	8,249
Core partner	106	11	21	27	3	168
Younger partner	246	174	79	119	73	691
Older partner		85	93	113	77	368
New partner	107	39	28	14	2	190
Unweighted N	*5,353*	*1,096*	*1,827*	*934*	*456*	*9,666*

[13] Institutional interviews were introduced at wave 2 for those who move out of the private residential sector after the baseline wave

Table 5.3 shows that around three fifths of core members with a wave 7 interview were from the original Cohort 1 (59%). A fifth of core member interviews at wave 7 were from Cohort 4 (19%), and around one in ten were from each of Cohort 3 (10%) and Cohort 6 (8%). Cohort 7 accounted for 4% of interviews with Core Members.

Table 5.3 Core member respondents in wave 7, by type of interview

Base: core member respondents in wave 7, including those in institutions N: 8,249

	Cohort 1	Cohort 3	Cohort 4	Cohort 6	Cohort 7	Total Wave 7
	(n)	(n)	(n)	(n)	(n)	(n)
Type of interview in wave 7						
Full interview in person	4,629	749	1,546	645	290	7,859
Full interview by proxy	196	32	51	14	9	302
Partial interview in person	9	5	5	3	2	24
Partial interview by proxy	2	0	1	0	0	3
Institutional interview in person	9	1	0	0	N/A	10
Institutional interview by proxy	49	0	3	0	N/A	52
Total	*4,894*	*787*	*1,606*	*661*	*301*	*8,249*
% of all interviews with core members	*59%*	*10%*	*19%*	*8%*	*4%*	

5.2 Ineligibility and unknown eligibility

Core members were classified as ineligible in response rate calculations if it became *known* that they had died, moved outside Britain or outside England (Cohort 7 only). Table 5.4 shows that 30% of the original core members from Cohort 1 were ineligible by the time of wave 7. The smaller proportion of ineligibles for Cohort 3, 4, 6 and 7 can be explained by their younger age profile (i.e. fewer deaths).

Table 5.4 Core members ineligible by wave 7 (Cohort 1, 3, 4 and 6) and sample members from HSE ineligible at wave 7 (Cohort 7)

Base: core members ineligible by wave 7

	Cohort 1	Cohort 3	Cohort 4	Cohort 6	Cohort 7
Reason for ineligibility	(n)	(n)	(n)	(n)	(n)
Deaths	3,196	43	130	13	5
Moves out of Britain (all Cohorts) or England (Cohort 7)	169	17	16	4	3
Total	*3,365*	*60*	*146*	*17*	*8*
% of original core members	*30%*	*5%*	*6%*	*2%*	*2%*[14]

[14] This figure represents the proportion of sample members selected from HSE that were found to be ineligible at start of wave 7.

Unknown eligibility

Eligibility of some core members in wave 7 was not known. Known eligibility means essentially that the core member remained a member of the target population in wave 7 and should therefore be included in the response rate calculation. In some cases, eligibility may have been unknown because the household was unwilling to provide information needed to make that determination or core members could not be traced.

Response rates can be adjusted to include the sub-group of individuals 'unknown, but likely to have been eligible for interview'. Like earlier waves, the proportion of core members with unknown eligibility in wave 7 was small (1% of Cohort 1 core members were coded as non-contacts or not successfully traced). The response rate calculations set out in this chapter therefore make the assumption that the sub-groups with unknown eligibility were in fact eligible.

5.3 Fieldwork response rates

Field response rates are often used to evaluate the quality of fieldwork practices. The two main field response rates published to date for ELSA are the fieldwork household contact rate and the fieldwork cooperation rate (see Table 5.5).

The household contact rate is calculated by dividing the number of households where the interviewer made contact with at least one member of the sample by the number of eligible households found during fieldwork (issued plus newly formed households).

The cooperation rate is calculated by dividing the number of achieved individual interviews by the number of eligible individuals contacted by interviewers.

The rates presented in this section include only those core members who were issued to field interviewers at the start of wave 7. It excludes those known to have become ineligible (see Section 5.2) or selectively removed from the issued sample at wave 7 (e.g. due to a prior refusal or through being previously unable to trace).

All response rates presented here derived from the AAPOR (American Association for Public Opinion Research[15]) approach using the standard definitions and method used at NatCen. They have been calculated from a number of sources: outcome codes from fieldwork, sampling re-contact information and mortality updates.[16]

[15] http://www.aapor.org/AAPORKentico/Communications/AAPOR-Journals/Standard-Definitions.aspx

[16] This was information about deaths of respondents who had agreed to have their records linked to the HSCIC register (now NHS Digital). The mortality update provided information about deaths before the start of wave 7 fieldwork which was used to determine the composition of the issued sample.

Table 5.5 Fieldwork response rates by wave[17]

Type of field response rate		Response rates						
		Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
		%	%	%	%	%	%	%
Household contact rate	Cohort 1	95	97	97	97	97	98	98
	Cohort 3	N/A	N/A	83	97	94	97	96
	Cohort 4	N/A	N/A	N/A	92	98	98	98
	Cohort 6	N/A	N/A	N/A	N/A	N/A	89	96
	Cohort 7	N/A	N/A	N/A	N/A	N/A	N/A	85
Fieldwork cooperation rate	Cohort 1	70	84	83	77	80	86	83
	Cohort 3	N/A	N/A	74	81	81	84	81
	Cohort 4	N/A	N/A	N/A	69	87	85	79
	Cohort 6	N/A	N/A	N/A	N/A	N/A	62	83
	Cohort 7	N/A	N/A	N/A	N/A	N/A	N/A	70

5.3.1

5.3.2 Proportion of eligible core members issued to field at wave 7

Table 5.6 below shows the proportion of eligible core members that were issued to the field at wave 7 (i.e. those not known to have died or moved out of Great Britain). Eighty-one per cent of eligible Cohort 1 core members, 84% of Cohort 3 members, 97% of Cohort 4 members and 100% of Cohort 6 members had an opportunity to be interviewed at wave 7. Cohort 7 is omitted from the table because this was their first ELSA wave so all age-eligible cases were issued.

[17] External information from the National Health Service Central Register (now held by the Health and Social Care Information Centre - HSCIC) was matched to non-respondents to identify any deaths that had not been revealed in the course of fieldwork during waves 1-3. Individuals whose outcome showed that their eligibility had not been confirmed during fieldwork were all assumed to be eligible for the response rate calculation. From waves 4 to 6 only information from the HSCIC prior to fieldwork or confirmed by fieldwork were coded as deaths.

Table 5.6 Proportion of eligible core members issued to field at wave 7				
Base: all eligible core members				
	Cohort 1	**Cohort 3**	**Cohort 4**	**Cohort 6**
	%	%	%	%
Issued to field interviewers at wave 7	80.8	84.2	96.8	100.0
Not issued to field interviewers at wave 7	19.2	15.8	3.2	-
Total	100	100	100	100
Unweighted (N)	*7,766*	*1,199*	*2,176*	*824*

5.3.3 Fieldwork response rates at wave 7 split by Cohort

Each of the fieldwork response rates for wave 7 are described below and presented in Table 5.7. When considering contact and cooperation rates the focus is on performance at this wave only (i.e. fieldwork activity and the willingness of those households/individuals *issued* for follow-up to take part in the survey). For all measures, respondents were defined as those who gave a full or partial interview either in person or by proxy.

5.3.4 Fieldwork household contact rate

The household contact rate was calculated by dividing the number of households where the interviewer made contact with at least one member of the sample by the total number of eligible households found during fieldwork. This is an indicator of the combined quality of the contact details from the sampling frame and the processes used to track movers (outlined in Section 4.8). Over the full fieldwork period a household contact rate of 98% was achieved for Cohort 1, 96% for Cohort 3, 98% for Cohort 4, 96% for Cohort 6 and 86% for Cohort 7.

5.3.5 Fieldwork co-operation rate

The co-operation rate was calculated by dividing the number of achieved individual interviews by the number of eligible individuals contacted by interviewers. Over the full fieldwork period at wave 7 an individual co-operation rate of 83% was achieved for Cohort 1 core members, 81% for Cohort 3 core members, 79% for Cohort 4 core members, 83% for Cohort 6 core members, and 70% for Cohort 7 age-eligible sample members.

5.3.6 Individual response rate

The individual response rate is defined as "total individuals with a wave 7 interview divided by total individuals eligible for wave 7". In this case, eligibility means those core members issued at wave 7 who were not known to have died or moved outside of Great Britain. The highest response rate was among core members in Cohort 1 (82%). Response among Cohort 3, Cohort 4 and Cohort 6 was similar (79%, 78%

and 81% respectively). The lowest response rate was among Cohort 7 (61%), which is to be expected as this is the first wave they have been invited to take part.

Table 5.7 Fieldwork response rates at wave 7 split by Cohort

Base: eligible core members issued to field at wave 7

	Cohort 1	Cohort 3	Cohort 4	Cohort 6	Cohort 7
Fieldwork response rates	%	%	%	%	%
Fieldwork household contact rate	98	96	98	96	86
Fieldwork cooperation rate	83	81	79	83	70
Individual response rate	82	79	78	81	61

5.3.7

5.3.8 Reasons for non-response

Table 5.8 gives a breakdown of the reasons recorded by interviewers for non-response at wave 7. It is based on contacts issued to the field at the start of wave 7 who were eligible for the response rates. Refusals made up the greatest proportion of non-response for all cohorts, ranging from 58% in Cohort 7 to 78% in Cohort 4. Problems with non-contact and movers were greatest for Cohort 7 (33%) as no other attempt had been made to contact them since their HSE interview which took place sometime in 2011 or 2012. In contrast, core members from the other cohorts had been sent Christmas Cards since their last ELSA interview (thereby providing an opportunity to update address records).

Table 5.8 Reasons for non-response at wave 7 split by Cohort

Base: all non-responding eligible core members issued to field at wave 7

	ELSA Cohort				
	Cohort 1	Cohort 3	Cohort 4	Cohort 6	Cohort 7
	%	%	%	%	%
Refusal	68	76	78	70	58
Moved/non-contact	11	16	12	22	33
Other unproductive[18]	21	8	9	9	9
Unweighted (N)	*1,159*	*305*	*515*	*210*	*190*

5.4 Study response rates

Various conditional response rates can be used to show how effective ELSA has been at maintaining its original sample. Table 5.9 shows the percentage of age-eligible sample members with an HSE interview who went on to take part in ELSA within each cohort.

[18] This included being ill at home, in hospital, physically or mentally unable to participate, language difficulties, "other" reasons.

For each of the ELSA cohorts, potential age-eligible sample members were selected from households that had previously participated at HSE (also known as ELSA wave 0). A cross-sectional rate conditional on wave 0 response can be used to show what proportion of eligible sample members with an HSE interview took part in ELSA the first time they were approached as a potential core member.

Table 5.9 Cross-sectional response rates at the wave they joined ELSA, conditional on wave 0 response

Cohort	Notation	Meaning	Numerator	Denominator	Rate
Cross-sectional conditional rates					
Cohort 1	$RR_{1\|0}$	The (cross-sectional) W1 response rate conditional upon W0 response	Responding in W1	Eligible in W1 & respondent in W0	65%
Cohort 3	$RR_{3\|0}$	The (cross-sectional) W3 response rate conditional upon W0 response	Responding in W3	Eligible in W3 & respondent in W0	56%
Cohort 4	$RR_{4\|0}$	The (cross-sectional) W4 response rate conditional upon W0 response	Responding in W4	Eligible in W4 & respondent in W0	65%
Cohort 6	$RR_{6\|0}$	The (cross-sectional) W6 response rate conditional upon W0 response	Responding in W6	Eligible in W6 & respondent in W0	54%
Cohort 7	$RR_{7\|0}$	The (cross-sectional) W7 response rate conditional upon W0 response	Responding in W7	Eligible in W7 & respondent in W0	61%

Cohort 1 core members have been part of the ELSA study since 2002 (wave 1). It is of interest to see how effective the study has been at maintaining this original panel of core members over time. Table 5.10 presents cross-sectional response rates for eligible cases (i.e. not deceased or moved out of GB) at each wave for Cohort 1 core members conditional upon wave 1 response.

Table 5.10	Cross-sectional response rates conditional upon wave 1 response				
Calculated at wave	**Notation**	**Meaning**	**Numerator**	**Denominator**	**Rate**
Cross-sectional conditional rates (Cohort 1)					
Wave 2	$RR_{2\|1}$	The (cross-sectional) W2 response rate conditional upon W1 response	Responding in W2	Eligible in W2 & respondent in W1	82%
Wave 3	$RR_{3\|1}$	The (cross-sectional) W3 response rate conditional upon W1 response	Responding in W3	Eligible in W3 & respondent in W1	74%
Wave 4	$RR_{4\|1}$	The (cross-sectional) W4 response rate conditional upon W1 response	Responding in W4	Eligible in W4 & respondent in W1	69%
Wave 5	$RR_{5\|1}$	The (cross-sectional) W5 response rate conditional upon W1 response	Responding in W5	Eligible in W5 & respondent in W1	69%
Wave 6	$RR_{6\|1}$	The (cross-sectional) W6 response rate conditional upon W1 response	Responding in W6	Eligible in W6 & respondent in W1	66%
Wave 7	$RR_{7\|1}$	The (cross-sectional) W7 response rate conditional upon W1 response	Responding in W7	Eligible in W7 & respondent in W1	61%

Table 5.11 presents longitudinal conditional response rates at each wave for Cohort 1 core members. They show the proportion of remaining *eligible* wave 1 core members who gave an interview in every wave up to and including the current wave.

Table 5.11 Longitudinal conditional response rates					
Calculated at wave	**Notation**	**Meaning**	**Numerator**	**Denominator**	**Rate**
Longitudinal conditional rates					
Wave 2[19]	$RR_{2\|1}$	The (longitudinal) conditional W2 response rate	Responding in W2	Eligible in W2 & respondent in W1	82%
Wave 3	$RR_{3,2\|1}$	The (longitudinal) conditional W3 response rate	Responding in W2 & W3	Eligible in W1, W2 & W3 & respondent in W1	71%
Wave 4	$RR_{4,3,2\|1}$	The (longitudinal) conditional W4 response rate	Responding in W2, W3 & W4	Eligible in W1, W2, W3 & W4 & respondent in W1	63%
Wave 5	$RR_{5,4,3,2\|1}$	The (longitudinal) conditional W5 response rate	Responding in W2, W3, W4 & W5	Eligible in W1, W2, W3, W4 & W5 & respondent in W1	59%
Wave 6	$RR_{6,5,4,3,2\|1}$	The (longitudinal) conditional W6 response rate	Responding in W2, W3, W4, W5 & W6	Eligible in W1, W2, W3, W4, W5 & W6 & respondent in W1	56%
Wave 7	$RR_{7,6,5,4,3,2\|1}$	The (longitudinal) conditional W7 response rate	Responding in W2, W3, W4, W5, W6 & W7	Eligible in W1, W2, W3, W4, W5, W6 & W7 & respondent in W1	51%

Study response rates can be used to measure how effective a longitudinal study has been at maintaining its original panel of members. For ELSA study rates, core members would only be deemed ineligible if they had died or moved out of Britain. Therefore those who were not issued for an interview at wave 7 (e.g. due to prior refusal or being untraced) are still treated as eligible in the study response rates but not in the fieldwork response rates. Indeed, it would be misleading to evaluate the quality of the fieldwork effort using the broader study response rates shown in Section 5.4 because interviewers are not given the opportunity to interview all eligible non-respondents.

[19] This rate is equivalent to the cross-sectional W2 response rate conditional upon W1 response

The individual study response rates were calculated for wave 7 by dividing the number of achieved individual interviews by the number of *eligible* individuals (that is to say, individuals not known to have died or moved out of Britain. All ineligible cases were set aside before the response rates were calculated.

5.5 Response to self-completion questionnaire

Self-completion questionnaires were given to all individuals interviewed in person (rather than by proxy). Of the 9,069 individuals (Core Members and partners) interviewed in person, 96.7% agreed to complete a self-completion interview, and 222 received help from an interviewer to complete the form. The total number of self-completion forms returned was 8,197, or 90.3% of those completing a main interview in person. The refreshment sample for wave 7 (Cohort 7) self-completion response rate was slightly lower at 80.1%, to be expected at the first wave of taking part.

Of the 8,249 Core Members interviewed, 7,893 were interviewed in person and were offered the self-completion questionnaire, with 7,130 (90.3%) self-completion questionnaires received from these. Table 5.12 presents the self-completion response rate for Core Members by cohort.

Table 5.12 Self-completion response by Cohort

Base: all eligible core members completing a face-to-face interview at Wave 7

	ELSA Cohort					
	Cohort 1	Cohort 3	Cohort 4	Cohort 6	Cohort 7	Total
	%	%	%	%	%	%
Received self-completion questionnaire	91	90	92	89	80	90
Unweighted (n)	*4206*	*682*	*1430*	*576*	*236*	*7130*

6 Weighting

This chapter describes the weighting strategy used to adjust for differential non-response at wave 7. The derivation of the longitudinal weights is described in Sections 6.1 and 6.2. Section 6.3 deals with the cross-sectional weights and section 6.4 describes the weighting for those responding to the self-completion questionnaire.

Advice on using the weights is provided in the "User Guide Waves 1 to 8" available from the UK Data Service.

6.1 Longitudinal and cross-sectional weights introduction

Longitudinal datasets such as ELSA can be analysed longitudinally or as a cross-section. Cross-sectional analysis uses data collected in one wave only, whilst longitudinal analysis involves data collected from more than one wave for the purposes of analysing change. Cross-sectional and longitudinal weights support these two different objectives and, as in previous waves, both types of weights have been produced for wave 7 core members. Those with partial and proxy interviews are treated as respondents but those living in institutions do not receive either longitudinal or cross-sectional weights.

For wave 7 two longitudinal weights were created:

- Longitudinal weight (wave 1 base): a longitudinal weight for Cohort 1 core members who have taken part since the beginning of ELSA (wave 1);
- Longitudinal weight (wave 4 base): an additional longitudinal weight for core members (from cohorts 1, 3 and 4) who have taken part in every wave since wave 4.

The latter weight is introduced for the first time at wave 7 and provides a larger base for analyses involving the later waves (wave 4 onwards) only. Both weights build on the corresponding wave 6 longitudinal weights, which in turn were based on previous longitudinal/ attrition weights going back to the first relevant wave (i.e. wave 1 in the case of the original longitudinal weight and wave 4 in the case of the wave 4 base longitudinal weight). The sequential nature of the weighting means that the weights adjust for historical non-response as well as non-response since the last wave.

Cross-sectional weights are defined for all core members living in private households in England who responded to wave 7, including new entrants to the study and people who missed one or more of the preceding waves (whom we shall refer to as wave non-responders).

The cross-sectional and longitudinal weights are described in turn, beginning with the longitudinal weights.

6.2 Longitudinal weights

As described above, two different longitudinal weights are now produced. The purpose of each of these weights is to make those receiving them as representative as possible of people aged 50+ living in England at the time of the reference wave i.e. 2002, in the case of the wave 1 base weight, and 2008, in the case of the wave 4 base weight. As such, those who have subsequently moved to Scotland and Wales (at any point) are still eligible to receive a longitudinal weight.

6.2.1 Longitudinal weights (wave 1 base)

A longitudinal weight was created for the 4,062 Cohort 1 core members who responded to all seven waves of ELSA and have remained living in private households. The purpose of the weight is to make those receiving it as representative as possible of all people who:

- were aged 50+ and living in England in 2002 (when wave 1 was conducted);
- remain living in private households.

These respondents are now aged 62 and over.

For the 4,446 Cohort 1 core members who were eligible for the main interview in wave 7 and responded at all previous waves, response to wave 7 was modelled using logistic regression analysis on a range of household- and individual-level information collected at wave 6 (supplemented by information taken from waves 1–5). The analysis was conducted using the wave 6 longitudinal weight (to ensure that the wave 7 weight did not replicate the adjustments made by the wave 6 weight).

The results showed significant differences between respondents and non-respondents on the following characteristics:

- age (at wave 1) by sex;
- region;
- highest educational qualification;
- self-reported general health.

Taking the inverse of the estimated probability of response (from the logistic regression model) created a non-response weight for wave 7. This was then multiplied by the wave 6 longitudinal weight (and scaled to an average of 1) to produce the wave 7 longitudinal weight. The sequential nature of the weighting means that we have adjusted for non-response to HSE and each of the seven waves of ELSA.

6.2.2 Longitudinal weights (wave 4 base)

A new longitudinal weight was created at wave 7 for all core members from cohorts 1, 3 and 4 who were eligible for the main interview in wave 7, and who responded to

all of waves 4 to 7. The purpose of the weight is to make those receiving it as representative as possible of all people who:

- were aged 50+ and living in England in 2008 (when wave 4 was conducted)[20];
- remain living in private households.

These respondents are now aged 56 and over.

There were 6,509 such core members with 4,321 coming from Cohort 1, 690 from Cohort 3 and 1,498 from Cohort 4. This weight will provide a larger base for longitudinal analyses which utilise data from any subset of waves 4-7 (and do not include waves 1-3).

For the 7,199 core members from cohorts 1, 3 and 4 who were eligible for the main interview in wave 7 and responded at all of waves 4-6, response to wave 7 was modelled using logistic regression analysis on a range of household- and individual-level information collected at wave 6 (supplemented by information taken from waves 1–5). Separate models for were created for each cohort (1, 3 and 4); however, for consistency (and parsimony) characteristics that were predictive of response for any one of the three cohorts were included in all three models.

The analysis was conducted using the wave 6 longitudinal weight (wave 4 base)[21]; this weight was based on a sequence of non-response models which adjust for non-response since wave 4.

The results showed significant differences between respondents and non-respondents on the following characteristics (after controlling for age/sex and region which were also included in the final model):

- IMD quintile;
- highest educational qualification;
- self-reported general health.
- white/non-white ethnicity;
- marital status.

Taking the inverse of the estimated probability of response (from the logistic regression model) created a non-response weight for wave 7. This was then multiplied by the wave 6 longitudinal weight (wave 4 base) and scaled to have an average of 1 to produce the final wave 7 longitudinal weight (wave 4 base). The

[20] Respondents who were living in Scotland or Wales at wave 4 do not receive a weight (they received a zero cross-sectional weight at wave 4).

[21] To create the wave 4 base longitudinal weight, we modelled wave 5 response contingent on response wave 4; then, using the resulting weight, we modelled wave 6 response contingent on response to wave 5 before using this weight to model wave 7 response as described below.

sequential nature of the weighting means that we have adjusted for non-response to HSE and each of the seven waves of ELSA.

6.3 Cross-sectional weights

A cross-sectional weight was created for analysis of the full set of core members responding at wave 7. This allows for the inclusion of core members from cohorts 3, 4, 6, and 7 including 'wave non-responders' (core members from cohorts 1, 3 and 4 who returned to the study at wave 7 after missing one or more previous waves). The aim of the cross-sectional weight is to make the sample representative of people living in private households in England (in 2014). Those living in Scotland or Wales therefore receive a zero cross-sectional weight.

Core members from cohorts 1, 3, 4, 6 and 7 who responded at wave 7 can be described as the combined sample. For weighting purposes, this combined sample was split into two main groups by age (at interview): those aged 63+ and those aged 50-62. These groups cut across cohorts 1 and 4 as shown in Table 6.1 below.

Table 6.1 Core member respondents in England at wave 7

Core member respondents at wave 7 (2014-15) living in England, including proxies but excluding those in institutions

	Age at wave 7 interview	Cohort 1	Cohort 3	Cohort 4	Cohort 6	Cohort 7
Aged 63+:						
Cohort 1 longitudinal group	63+	3,990				
Cohort 1 wave non-responders		745				
Cohort 4 longitudinal group	63-80			991		
Cohort 4 wave non-responders	63-80			65		
Aged 50-62[22]:						
Cohort 1 (aged 62)	64	74				
Cohort 3	60-64		735			
Cohort 4	58-64			592[23]		
Cohort 6	54-64				660	

[22] Each of cohorts 1, 3 and 4 below comprises a mix of longitudinal cases and wave non-responders i.e. these two types of cases are not split out as they are above.

[23] A small number of these were cohort 3 core members who were not issued until wave 4. As described elsewhere in this report such cases are considered as part of cohort 4.

Cohort 7	52-54					300
Total		4,809	735	1,648	660	300

The cross-sectional weight was calculated using the following steps:

1. A non-response weight was derived for Cohort 3 core members who had responded to all of waves 3-7. This involved analysis of those who had responded to all previous waves (3-6) to adjust for non-response at wave 7.

2. A non-response weight was derived for Cohort 4 core members who had responded to all of waves 4–7. This involved analysis of those who had responded to all previous waves (4-6) to adjust for non-response at wave 7.

3. A non-response weight was derived for Cohort 6 core members who had responded to waves 6 and 7. This involved analysis of those who had responded to waves 6 to adjust for non-response at wave 7.

4. A non-response weight was derived for Cohort 7 core members to adjust for non-response at wave 7.

5. Population estimates (of highest educational qualification, tenure, ethnicity and marital status) for those aged 63+ (at wave 7 interview)[24] were derived from the longitudinal groups i.e. Cohort 1 core members responding to all seven waves of ELSA and Cohort 4 core members aged 63+ responding to all waves since wave 4.

6. The non-response weights for all core members aged 63+ at wave 7 (i.e. the two groups mentioned above in point 5 plus wave non-responders from both cohorts) were then calibrated to these population estimates plus estimates of age/sex and region from 2014 household population estimates.

7. The non-response weights for all core members aged 50-62 (at wave 7) were calibrated to 2014 population estimates of age/sex and region.

8. Finally, the calibration weights from steps 6 and 7 above were combined and scaled so that the average weight was equal to 1.

These steps are discussed in turn.

6.3.1 Non-response weight for Cohort 3

For the 710 Cohort 3 core members eligible for the main interview in wave 7 who responded to (all of) waves 3-6 (and remaining in private households in England), response to wave 7 was modelled on a range of household and individual-level information collected at wave 6. The analysis was conducted using the non-response weight derived in wave 6 to ensure that the wave 7 weight did not replicate any adjustment made by the wave 6 weight.

[24] The Methods chapter in the main report incorrectly stated that age was defined here as at 1st March 2016. In fact, age was based on age at wave 7 interview.

The results showed significant differences between respondents and non-respondents on two characteristics: sex and region. Taking the inverse of the estimated probability of response created a non-response weight to adjust for potential non-response bias between wave 6 and wave 7 for a total of 642 respondents.

6.3.2 Non-response weights for Cohort 4

For the 1,736 Cohort 4 core members[25] eligible for the main interview in wave 7 who responded to all waves 4-6 (and remaining in private households in England), response to wave 7 was modelled on a range of household and individual-level information collected at wave 6. The analysis was conducted using the non-response weight derived in wave 6 to ensure that the wave 7 weight did not replicate any adjustment made by the wave 6 weight.

The results showed significant differences between respondents and non-respondents on the following characteristics (after controlling for sex and region which were also included in the model):

- IMD quintile
- highest educational qualification;
- white/non-white ethnicity.

Age/sex was also included in the model.

Taking the inverse of the estimated probability of response created a non-response weight to adjust for potential non-response bias between wave 6 and wave 7 for a total of 1,544 respondents.

6.3.3 Non-response weights for Cohort 6

For the 817 Cohort 6 core members eligible for the main interview in wave 7 (and remaining in private households in England), response to wave 7 was modelled on a range of household and individual-level information collected at wave 6. The analysis was conducted using the non-response weight derived in wave 6 to ensure that the wave 7 weight did not replicate any adjustment made by the wave 6 weight.

The results showed significant differences between respondents and non-respondents on the following characteristics (after controlling for sex and region which were also included in the model):

- number of people in household;
- white/non-white ethnicity.

Taking the inverse of the estimated probability of response created a non-response weight to adjust for potential non-response bias between wave 6 and wave 7 for a total of 661 respondents.

[25] A small number of these were cohort 3 core members who were not issued until wave 4. As described elsewhere in this report such cases are considered to be part of cohort 4.

6.3.4 Non-response weights for Cohort 7

A cohort of people born between 1 March 1962 and 29 February 1964 was added to the ELSA sample at wave 7. They were selected from the Health Survey for England 2011 and 2012 and are collectively referred to as Cohort 7.

Their response to wave 7 was modelled on a range of household and individual-level information collected from HSE. The results showed significant differences between respondents and non-respondents on the following characteristics (after controlling for sex which was also included in the model):

- IMD quintile;
- whether had a long-term limiting illness.

Taking the inverse of the estimated probability of response created a non-response weight for the 300 respondents to adjust for potential non-response bias between HSE and ELSA.

6.3.5 Population estimates for those aged 63+

Core members aged 63+ responding at wave 7 belonged to one of three groups:

1. Cohort 1 core members who had taken part in all seven waves of ELSA;
2. Cohort 4 core members who had taken part in (all of) waves 4-7;
3. Wave non-responders i.e. core members from Cohorts 1, 3 and 4 who had returned to the study at wave 7 after missing one or more previous waves[26].

At wave 3, it was found that the following socio-demographic variables were predictive of wave non-response when compared with response to all waves:

- housing tenure;
- white/non-white ethnicity;
- highest educational qualifications;
- marital status.

To create a representative sample of persons aged 63+, it was necessary to ensure, as far as possible, that the characteristics of the combined sample (of all three groups) matched those of the population. The first two groups already had weights to adjust for non-response at wave 7, previous waves of ELSA and HSE:

- wave 7 longitudinal weight (3,990 Cohort 1 core members);
- cohort 4 non-response weight (991 Cohort 4 core members).

Combining these groups therefore provided a basis from which to estimate the population characteristics of those aged 63+.

[26] A small number of respondents from each group had moved to Scotland or Wales and were therefore given a zero cross-sectional weight.

Before these estimates could be derived, two adjustments were necessary:

i. the weights of those aged 65–80 (who come from Cohorts 1 and 4) were scaled down so that this group were in the correct proportion as compared with those aged 81 and over (who come from Cohort 1 only);

ii. these weights were then calibrated to mid-2014 household population estimates of age/sex and region.

Estimates of housing tenure, white/non-white ethnicity, highest educational qualification and marital status were then derived from the combined groups weighted by the resulting weights (the same characteristics were used as in waves 3–6 for consistency).

6.3.6 Cross-sectional weights for those aged 63+

The non-response weights for *all* core members aged 63+ at wave 7 (i.e. the two groups already combined plus the third group of wave non-responders) were then adjusted using calibration weighting so that the resulting weights, when applied to the three groups combined, provide a sample profile that matches the population estimates on the four socio-demographic characteristics plus estimates of age/sex and region of those aged 63+ (from mid-2014 household population estimates; see table 6.3). This means that the distribution of tenure, for example, in the final weighted sample (i.e. after the calibration adjustment) corresponds exactly to the estimated population distribution; the same is true for the distributions of the three other characteristics and for age/sex and region. This is shown in Table 6.2.

Column 3 of the table shows the weighted marginal distributions (pre-calibration) for this combined group aged 63+. The pre-calibration weights were as follows:

- The 3,990 core members from Cohort 1 and the 991 core members from Cohort 4 were given the weight derived at step i above (i.e. prior to the calibration used to create the population estimates);
- the 745 wave non-responders from Cohort 1 and the 65 wave non-responders from Cohort 4 were given the cross-sectional weight they received for the last wave in which they took part (i.e. prior to wave 7), for example those who missed wave 6 but took part in wave 5 were given their wave 5 cross-sectional weight.

Use of these weights ensured that appropriate non-response adjustments had been made to each group prior to calibration.

Column 4 shows the final weighted marginal distributions (post-calibration) across the four variables. As expected, the post- calibration weighted distributions match the target distributions (shown in column 2) on each of these four dimensions.

Table 6.2 Distributions of key variables used in calibration weighting

Core member respondents at wave 7 (2014-15) living in England, including proxies but excluding those in institutions

Wave 7 characteristics	Col.2 Target distribution (63+ in England from cohorts 1 & 4 responding to all waves)	Col.3 Combined weighted sample 63+ (pre-calibration)	Col.4 Combined weighted sample 63+ (post-calibration)
	%	%	%
Tenure			
Own outright	75.7	74.8	75.7
Mortgage	6.8	7.3	6.8
Renting	17.4	17.9	17.4
Marital status			
Single, never married	4.3	4.3	4.3
Married, first and only marriage	54.9	54.4	54.9
Remarried	9.3	9.2	9.3
Separated/divorced	10.9	11.0	10.9
Widowed	20.6	21.1	20.6
Ethnicity			
White	97.0	96.9	97.0
Non-white	3.0	3.1	3.0
Educational status			
Degree or equivalent	15.2	15.0	15.2
A level/higher education below degree	22.2	21.4	22.2
O level or other	18.1	18.4	18.1
CSE or other / No qualifications	44.4	45.2	44.4
Base			
Unweighted	*4,981*	*5,791*	*5,791*

6.3.7 Cross-sectional weights for those aged 50-62

Responding core members aged 50-62 at wave 7 came from all cohorts[27]. They were combined, and their non-response weights were adjusted using calibration weighting

[27] A small number of these respondents had moved to Scotland or Wales and were therefore given a zero cross-sectional weight.

so that the resulting weights provide a sample profile that matches population estimates of age/sex and region (from mid-2014 household population estimates; see table 6.3) for those aged 50-62.

The pre-calibration weights were as follows:

- core members who responded to all waves to which they were invited were given their respective cohort non-response weight (the derivations of which were described above).
- wave non-responders from cohorts 1, 3 and 4 were given the non-response weight from the last wave at which they took part e.g. anyone who missed wave 6 but took part in wave 5 was given the non-response weight from wave 5.

Use of these weights ensured that appropriate non-response adjustments had been made to each group prior to calibration.

6.3.8 Putting the cross-sectional weights together

The final step in the calculation of the cross-sectional weights was to take the calibrated weights from the two groups (50-62 and 63+) combined and to scale them so that they are in the correct proportion in the final weighted sample. The final weights were then scaled so that the average weight was equal to 1.

The profile of the combined core member respondents, weighted by the cross-sectional weight, is presented in, is presented in Table 6.4, whilst the unweighted numbers are shown in Table 6.5.

Table 6.3 Household population estimates (mid-2014)

Mid-2014 England household population (aged 50 and over)

Age	Men	Women	Total	Men	Women	Total
				%	%	%
50-54	1,825,985	1,870,007	3,695,992	20.3	18.8	19.5
55-59	1,564,818	1,603,333	3,168,151	17.4	16.1	16.7
60-64	1,416,224	1,481,433	2,897,658	15.7	14.9	15.3
65–69	1,435,465	1,519,949	2,955,414	15.9	15.3	15.6
70–74	1,029,629	1,134,839	2,164,468	11.4	11.4	11.4
75–79	805,832	941,702	1,747,533	8.9	9.5	9.2
80-84	541,101	709,749	1,250,849	6.0	7.1	6.6
85+	397,441	682,587	1,080,028	4.4	6.9	5.7
Total	9,016,494	9,943,599	18,960,094	100	100	100

Source: Calculated from ONS, Annual Mid-Year Population Estimates for England and Wales, 2014[28]

Table 6.4 Core member respondents in England at wave 7 by age and sex (weighted)

Core member respondents at wave 7 (2014-15) living in England, including proxies but excluding those in institutions

Age at wave 7 interview	Men	Women	Total	Men	Women	Total
				%	%	%
50-54	785	804	1,589	20.3	18.8	19.5
55-59	673	689	1,362	17.4	16.1	16.7
60-64	609	637	1,246	15.7	14.9	15.3
65–69	617	654	1,271	15.9	15.3	15.6
70–74	443	488	931	11.4	11.4	11.4
75–79	346	405	751	8.9	9.5	9.2
80-84	233	305	538	6.0	7.1	6.6

[28] ELSA is weighted to the household population in England, excluding those in institutions. As the Office for National Statistics (ONS) no longer produces household population estimates, these are calculated by adjusting the latest ONS mid-year residential population estimates. The adjustment is based on the ratio between the (2011) census residential and household population figures for each age and sex grouping within each region.

85+	171	293	464	4.4	6.9	5.7
Weighted N	3,877	4,275	8,152	100	100	100
Unweighted N	3,595	4,557	8,152	100	100	100

Table 6.5 Core member respondents in England at wave 7 by age and sex (unweighted)

Core member respondents at wave 7 (2014-15) living in England, including proxies but excluding those in institutions

Age at wave 7 interview	Men	Women	Total	Men	Women	Total
50-54	236	326	562	6.6	7.2	6.9
55-59	398	518	916	11.1	11.4	11.2
60-64	677	815	1,492	18.8	17.9	18.3
65–69	735	904	1,639	20.4	19.8	20.1
70–74	579	697	1,276	16.1	15.3	15.7
75–79	501	619	1,120	13.9	13.6	13.7
80-84	271	371	642	7.5	8.1	7.9
85+	198	307	505	5.5	6.7	6.2
Unweighted N	3,595	4,557	8,152	100	100	100

6.4 Self-completion weights

For the 7,133 core members living in private households in England who completed a full or partial wave 7 main interview, response to the main self-completion questionnaire was modelled on a range of household and individual level information collected from the ELSA wave 7 main interview. In a separate exercise, response to the sexual activities self-completion questionnaire was modelled using the same data. The weighting strategy aimed to minimise any bias arising from differential non-response to each self-completion questionnaire. The analyses were conducted on data weighted by the wave 7 cross-sectional weight.

6.4.1 Self-completion weights

For the 8,152 core members living in private households in England who completed a full or partial wave 7 main interview, response to the main self-completion questionnaire was modelled on a range of household and individual level information collected from the ELSA wave 7 main interview. The weighting strategy aimed to minimise any bias arising from differential non-response to the self-completion questionnaire. The analysis was conducted on data weighted by the wave 7 cross-sectional weight.

The results showed significant differences between (core member) respondents to the self-completion and non-respondents on the following characteristics:

- age by sex;
- region;
- highest educational qualification;
- white/non-white ethnicity;
- housing tenure;
- marital status;
- self-reported general health;
- whether had a long-term limiting illness;
- number of people in household;
- financial unit type;
- current work/activity status;
- whether had help with showcards.

A non-response weight for the 7,095 self-completion respondents was created by taking the inverse of the estimated probability of response. The final self-completion weight was a product of this non-response weight and the wave 7 cross-sectional weight (scaled so that the average weight was equal to 1).

7 Data editing and preparation

This chapter provides brief details about editing and preparation of data that is carried out following the end of data collection, and how the data can be accessed.

7.1 Data preparation

Most data validation of the CAPI surveys is carried out in the field – extensive checks are included in the CAPI program to prompt interviewers to clarify and check data discrepancies directly with the participant in real time. However, all cases are also passed through an in-house edit to identify any further interviewer issues, along with checks on specific elements of the data.

Open text is coded in NatCen's Brentwood data processing unit, and a dataset is produced for Natcen to perform routine checks. These include checking for duplicate respondents, checking routing of questions within each module and checking for missing data. Issues are resolved through programming changes and a revised dataset is then created. Variables are labelled and re-labelled, and disclosive variables are dropped. Core derived variables are created, and cross sectional, self-completion and longitudinal weighting variables are added to the dataset. Administrative variables such as unique ID (Idauniq) variables are also added for refreshment sample cases.

Individual collaborator organisations make additional checks to specific modules and the Institute of Fiscal Studies creates two datasets: Financial Derived Variables Relationships and a Pensions Grid.

7.2 Paper self-completions

All paper self-completion questionnaires are passed through an edit to check for any participant routing and coding errors (for example multiple responses to single-code questions). This electronic reconciliation edit carried out by NatCen also checks that the values from the CAPI interview indicating whether or not a person completed a self-completion or consented to link their survey data to administrative records matched the equivalent data in the scanned dataset for each record.

Any mis-matches are reconciled at this point. Survey data such as age, gender, names and outcome codes are also used to reconcile the self-completion and consent data with information collected during the CAPI interview.

7.3 Accessing ELSA data

Once all checks are complete, data have been cleaned and derived variables, weights and other additional variables added, the core dataset, financial derived datasets, user guide and questionnaires are archived at the UK Data Service (https://discover.ukdataservice.ac.uk/catalogue). These can be accessed by any researcher through registering with the UK Data Service and filling out a short form.

Disclosive data, such as geographical variables, are not archived but are held by NatCen, and researchers may apply to access them. An application form can be requested from the ELSA Data Manager and once completed is reviewed by the NatCen Data Release Panel for consideration.

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Appendix A Key Survey Measures By Wave

Appendix Table A.1: Demographic data at each wave of ELSA

		Wave 0	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
Demographics									
	Household membership	✔	✔	✔	✔	✔	✔	✔	✔
	Changes in household membership		✔	✔	✔	✔	✔	✔	✔
	Living parents, siblings, children, and grandchildren	✔	✔	✔	✔	✔	✔	✔	✔
	Marital status	✔	✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	Ethnic group	✔	✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	Country of birth	✔	✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	Educational qualifications	✔	✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	Age completed full-time education		✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	Occupation of main carer when respondent was aged 14 yr		✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)

Note: Cells in parentheses (✔) only updated if circumstances change

Appendix Table A.2: Content of the economics data at each wave of ELSA

		Wave 0	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
Household Income									
	Earnings		✔	✔	✔	✔	✔	✔	✔
	State benefits (by source and recipient)		✔	✔	✔	✔	✔	✔	✔
	Private pensions		✔	✔	✔	✔	✔	✔	✔
	Asset income (by asset category)		✔	✔	✔	✔	✔	✔	✔
	Other income (including receipt of lump sums)		✔	✔	✔	✔	✔	✔	✔
	Financial assets (12 categories)		✔	✔	✔	✔	✔	✔	✔
	Physical assets (5 categories)		✔	✔	✔	✔	✔	✔	✔
	Business wealth		✔	✔	✔	✔	✔	✔	✔
	Debt (3 categories)		✔	✔	✔	✔	✔	✔	✔
	Primary housing wealth and mortgage debt		✔	✔	✔	✔	✔	✔	✔
	Equity release and home reversion plans		✔	✔	✔	✔			
	Life time receipt of inheritances and gifts							✔	✔
	Life insurance		✔	✔	✔	✔	✔	✔	✔

	Current plan details		✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	Date joined plan		✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	Current contributions		✔	✔	✔	✔	✔	✔	✔
	Self-reported accrued pension wealth		✔	✔	✔	✔	✔	✔	✔
	Past pension details (up to 3 past pensions)		✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	Plan names		✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	State pension statements				✔				

		Wave 0	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
Household Income									
	Knowledge of female state pension age				✔	✔	✔	✔	✔
	Knowledge of male state pension age							✔	✔
	State pension deferral					✔	✔	✔	✔
	Main job details	✔	✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	Health and work disability			✔	✔	✔	✔	✔	✔
	Normal pay and hours	✔	✔	✔	✔	✔	✔	✔	✔
	Secondary and other economic activity details		✔	✔	✔	✔	✔	✔	✔
	Age and reason for retirement if retired		✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	Employer name and permission to contact		✔	(✔)	(✔)	(✔)	(✔)	(✔)	(✔)
	Compulsory retirement ages			✔	✔	✔	✔	✔	✔
	Health limiting ability to work			✔	✔	✔	✔	✔	✔
	Desired/offered/requested workplace adaptations			✔	✔	✔	✔		
	Housing (rent and mortgage payments)	✔	✔	✔	✔	✔	✔	✔	✔
	Vehicle ownership		✔	✔	✔	✔	✔	✔	✔
	Durable ownership		✔	✔	✔	✔	✔	✔	✔
	Durable purchases			✔	✔	✔	✔	✔	✔
	Food in, food out		✔	✔	✔	✔	✔	✔	✔
	Fuel expenditures			✔	✔	✔	✔	✔	✔
	Health insurance contributions		✔	✔	✔	✔	✔	✔	✔
	Leisure			✔		✔	✔	✔	✔
	Clothing			✔	✔	✔	✔	✔	✔
	Transfers (incl. charitable giving and Child Trust Funds (except Wave 4 and 5 when CTF asked about explicitly)			✔		✔	✔	✔	✔
	Contributions to Child Trust Funds					✔	✔		

		Wave 0	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
Household Income									
	Mortality		✔	✔	✔	✔	✔	✔	✔
	Employment		✔	✔	✔	✔	✔	✔	✔
	Bequest and inheritances		✔	✔	✔	✔	✔	✔	✔
	Health limit ability to work		✔	✔	✔	✔	✔	✔	✔
	Income adequacy		✔	✔	✔	✔	✔	✔	✔
	Movement into nursing home			✔				✔	✔
	House value		✔	✔	✔	✔	✔	✔	✔
	Moving house			✔				✔	✔
	Public and private pension income			✔	✔	✔	✔	✔	✔
	Self-reported financial planning period		✔	✔					
	Perceived financial position relative to neighbours/friends/colleagues			✔	✔	✔	✔		
	Future housing and care needs			✔				✔	✔
	Risk module (subgroup)						✔		

Note: Cells in parentheses (✔) only updated if circumstances change
Note: Cells in square brackets [✔] only collected for new sample members or people who have not responded before

Appendix Table A.3: Measures of health, disability, and health behaviour at each wave of ELSA

		Wave 0	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
	Self-rated general health; (Limiting) long-standing illness	✔	✔	✔	✔	✔	✔	✔	✔
	Mobility: difficulties walking ¼ mile & symptoms if try		✔	✔	✔	✔	✔	✔	✔
	Eyesight and hearing – self-reported health and difficulties. Whether had glaucoma/diabetic eye disease/cataract/macular degeneration, Cataract surgery		✔	✔	✔	✔	✔	✔	✔
	Dental health – self reported oral health and related difficulties				✔		✔		✔
	If age 65+ years, whether blood pressure checked in last year		✔ 65+	✔ 65+	✔ (all)	✔ (all)	✔ (all)	✔ (all)	✔ (all)
	Physician diagnosed conditions: Ischaemic heart disease, stroke, diabetes, raised cholesterol, quality of care, chronic lung disease, asthma, arthritis, osteoporosis, cancer, Parkinson's disease, Alzheimer's, dementia.		✔	✔	✔	✔	✔	✔	✔
	Falls and resulting fractures if age 60+y, including quality of care at except W7		✔	✔	✔	✔	✔	✔	✔
	Hip and knee replacements received, including quality of care at except W7		✔	✔	✔	✔	✔	✔	✔
	Pain: overall rating (mild/mod/severe) and for back, hip, knees, including quality of care at except W7		✔	✔	✔	✔	✔	✔	✔
	Balance, quality of care, dizziness		✔	✔		✔		✔	
	Sleep disturbance					✔		✔	
	Diagnostic symptom assessments: Rose Angina, MRC Respiratory Questionnaire;	✔	✔	✔	✔	✔	✔	✔	

		Wave 0	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
	Edinburgh Claudication Questionnaire				✔		✔		
	Disabilities: Mobility problems, ADLS and IADLS listed. Aids used, Sources of help, Who pays Age 65+y: whether use meals on wheels, day centres, lunch clubs		✔	✔	✔	✔	✔	✔	✔
	Urinary incontinence	✔	✔	✔	✔	✔	✔	✔	✔
	Bowel incontinence							✔	✔
	Quality of care for urinary incontinence		✔	✔					
	Menopause					✔	✔	✔	
	Cancer screening participation						✔	✔	✔
	Polypharmacy (Nurse visit)							✔	
	HearCheck test								✔
Health behaviours									
	Smoking history, quality of care for cessation	✔	✔	✔	✔	✔	✔	✔	✔
	Alcohol consumption: usual frequency, heaviest consumption day last week (questions have changed but been stable since W3)	✔	✔	✔	✔	✔	✔	✔	✔
	Physical activity: frequency do vigorous/moderate/mild exercise, Whether job sedentary or physically active	✔	✔	✔	✔	✔	✔	✔	✔
	Consumption of fruit and vegetables				✔	✔	✔	✔	✔
Mental health									
	Psychiatric and emotional problems, quality of care		✔	✔	✔	✔			
	General Health Questionnaire (GHQ-12)	✔	✔		✔				

		Wave 0	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
	CES-D depression scale		✔	✔	✔	✔	✔	✔	✔
Sexual health									
	Attitudes to sex							✔	
	Current sexual activities and experiences							✔	
	Sexual partners							✔	
	Lifetime desires and experiences							✔	
Physical examination and performance data (Interviewer visit)									
	Walking speed performance test		✔	✔	✔	✔	✔	✔	✔
Physical examination and performance data (Nurse visit)									
	Height (and sitting at W2 and W4)	✔		✔		✔		✔	
	Weight	✔		✔		✔		✔	
	Waist (and hip measurement at w2 and w4)	✔		✔		✔		✔	
	Blood pressure	✔		✔		✔		✔	
	Lung function	✔		✔		✔		✔	
	Chair stands;			✔		✔		✔	
	Balance – 3 positions			✔		✔		✔	
	Leg raise (eyes open and closed)	✔		✔		✔		✔	
	Grip Strength			✔		✔		✔	
	Saliva sample (for cortisol			✔		✔			
	Hair sample (for cortisol)							✔	
Blood assays									
	Triglycerides	✔		✔		✔		✔	

		Wave 0	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
	Total and HDL-cholesterol	✔		✔		✔		✔	
	LDL Cholesterol			✔		✔		✔	
	C-reactive protein, fibrinogen	✔		✔		✔		✔	
	Haemoglobin and ferritin	✔		✔		✔		✔	
	White blood cell count					✔		✔	
	Fasting lipids, glucose, glycated haemoglobin			✔		✔		✔	
	Cortisol (from saliva).			✔		✔			
	IgE / DHM IgE	✔							
	IGF-1					✔		✔	
	DHEAS					✔			
	Vitamin D							✔	
	DNA extraction and storage			✔		[✔]		[✔]	
	Apolipoprotein			✔					
	Mean corpuscular Hb (MCH)					✔		✔	

Note: Cells in square brackets [✔] only collected for new sample members or people who have not responded before

+ Questions on aids and sources of help changed in Wave 6.

Appendix Table A.4: Measures of cognitive function at each wave of ELSA

	Wave 0	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
Memory								
Self-rated memory		✔	✔	✔	✔			✔
Orientation in time		✔	✔	✔	✔	✔	✔	✔
Word-list recall, immediate and delayed (verbal learning and recall)		✔	✔	✔	✔	✔	✔	✔
Prospective memory		✔	✔	✔	✔	✔		
Executive function								
Word-finding (verbal fluency)		✔	✔	✔	✔	✔		✔
Letter cancellation (accuracy and speed of mental processing)		✔	✔	✔	✔	✔		
Backwards counting								✔
Serial 7s (subtracting 7 from one hundred)								✔
Object naming								✔
Basic cognitive skills/abilities								
Fluid Intelligence (adaptive number series)							✔	
Numerical ability		✔			✔		[✔]	[✔]
Literacy			✔			✔	[✔]	[✔]
Other variables								
Quality of cognitive interview (interviewer's assessment)		✔	✔	✔	✔	✔	✔	✔
Proxy interview of cognitive functioning – IQCODE scale			✔	✔	✔	✔	✔	✔

Note: Cells in parentheses [✔] only collected for new sample members or people who have not responded before

Appendix Table A.5: Psychosocial measures at each wave of ELSA

		Wave 0	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
Social and civic participation									
	Informal care giving		✔	✔	✔	✔	✔	✔	✔
	Volunteering		✔	✔	✔	✔	✔	✔	✔
	Provision of unpaid help					✔	✔	✔	✔
	Civic, social and cultural participation		✔	✔	✔	✔	✔	✔	✔
	Accessing local amenities and services		✔	✔		✔	✔	✔	✔
	TV watching					✔	✔	✔ *	✔ *
	Social networks		✔	✔	✔	✔	✔	✔	✔
	Social support	✔	✔	✔	✔	✔	✔	✔	✔
	Social isolation/loneliness			✔	✔	✔	✔	✔	✔
	Transport		✔	✔	✔	✔	✔	✔	✔
	Social capital (satisfaction with area)		✔		✔				
	Perceived discrimination						✔		
	Religiosity						✔		
	Digital inclusion							✔	✔
	Neighbourhood perceptions								✔
Psychosocial factors									
	Control and demand		✔	✔	✔	✔	✔	✔	✔
	Effort-reward balance			✔	✔	✔	✔	✔	✔
	Subjective social status		✔	✔	✔	✔	✔	✔	✔
	Relative deprivation and perceived financial difficulties (a duplicate of a question under heading expectations)			✔	✔	✔	✔	✔	
	Ages at which middle age ends and old age begins		✔		✔				✔

		Wave 0	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7
Social and civic participation									
	Self-perceived and desired ages			✔		✔		✔ **	✔
	Experience and perceptions of ageing			✔			✔		
	Sense of Collectiveness					✔			
	Altruism					✔			
	Pet ownership						✔		
Psychological and social well-being									
	Quality of life (CASP-19)		✔	✔	✔	✔	✔	✔	✔
	Satisfaction With Life Scale-SWLS (Diener)			✔	✔	✔	✔	✔	✔
	Ryff well-being scale			✔					
	Positive affect						✔		
	Personality						✔		
	Perceived wellbeing yesterday							✔	✔
	Time use and affect							✔	
	ONS wellbeing questions							✔	✔

* TV watching included as part of the wellbeing time use and affect questions

** only self perceived age, not desired age