

An introduction to health data in the Centre for Longitudinal Studies' national longitudinal cohort studies

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LONGITUDINAL
STUDIES

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Economic
and Social
Research Council

What we do at CLS

- ESRC-funded Resource Centre.
- Run a unique series of UK national cohort studies:
 - Follow thousands of people across life, from cradle to grave.
 - Covering multiple generations.
 - Collect extensive & rich data.
- Provide free data to the research community (e.g. via UKDS) ([link](#)):
 - Documentation, guidance & training.
 - Researchers can input on the data we collect (consultations).
- Conduct research:
 - Multidisciplinary, substantive & methodological (survey and statistical).

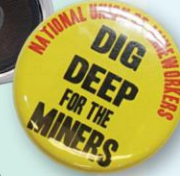
1946

1946 National Survey
of Health and
Development



1970

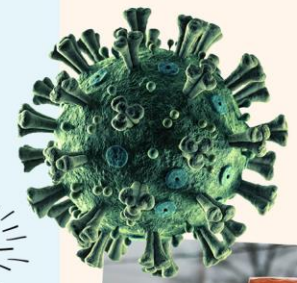
BCS70
1970 British
Cohort Study



2000

MILLENNIUM
COHORT STUDY

Photo: Miguelon756-5303



NHS



Photo: BiblioArchives/
LibraryArchives

ncds
National Child
Development Study

1958



NEXT
STEPS
LEARNING FROM YOUR GENERATION

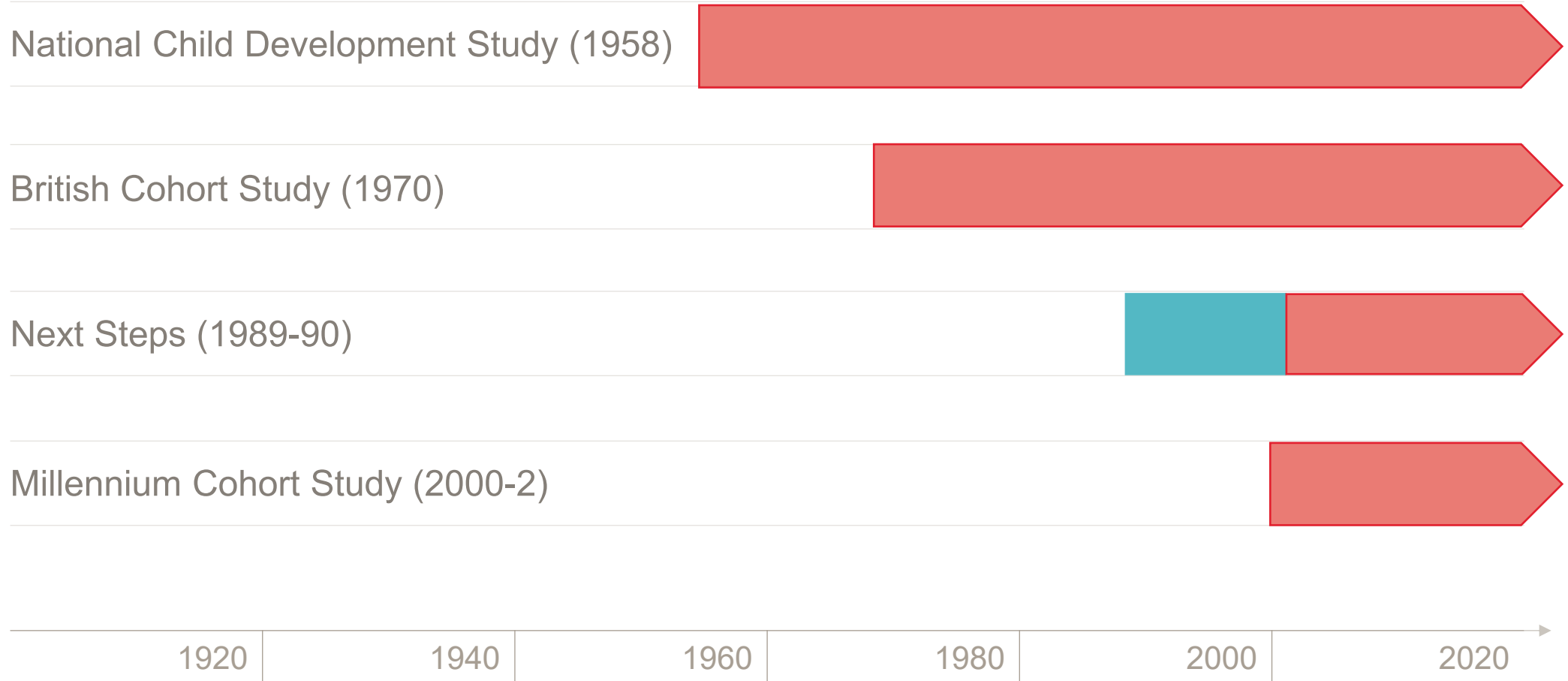
1989



EARLY LIFE COHORT
FEASIBILITY STUDY

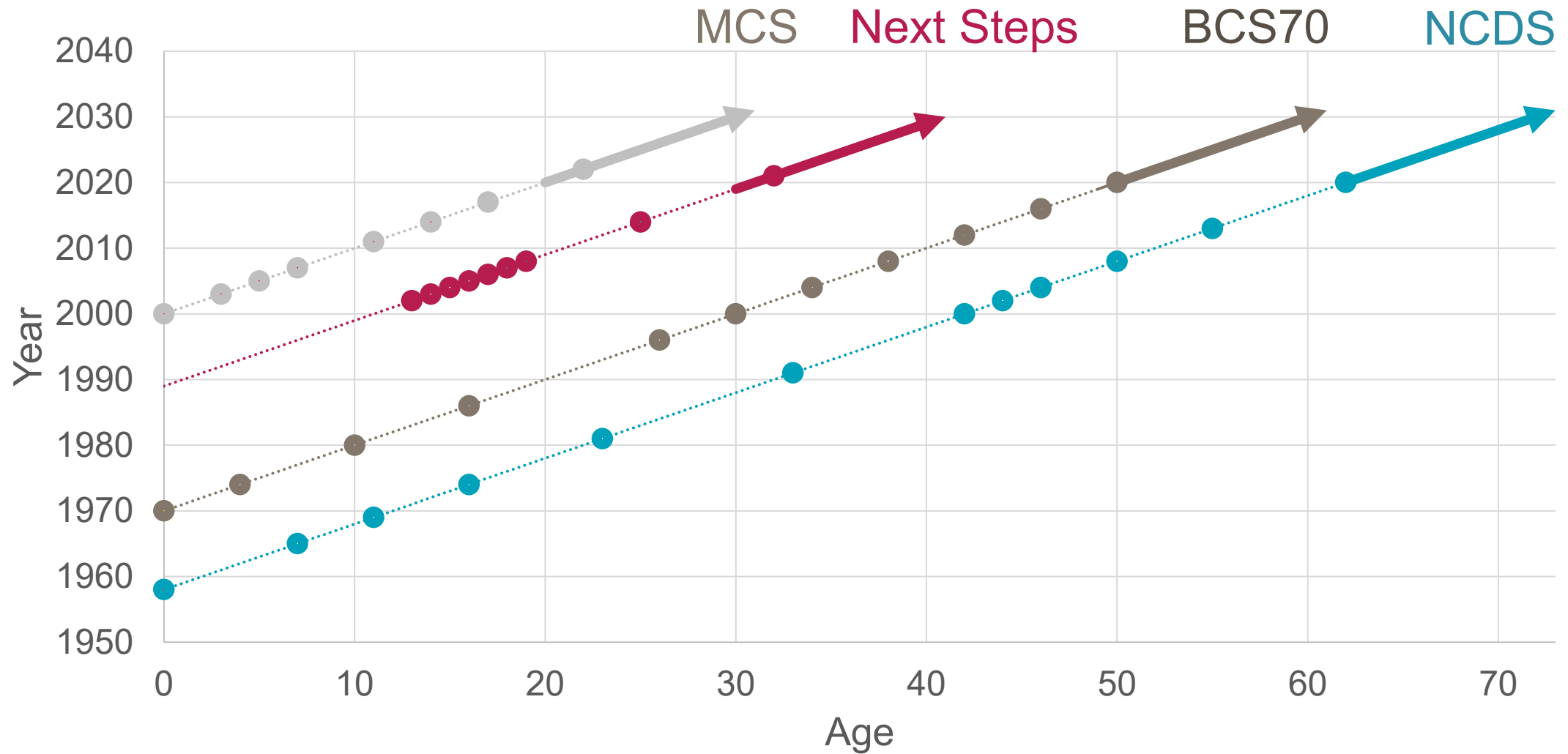
2022

CLS core studies






Follow-up across life, all N>16,000

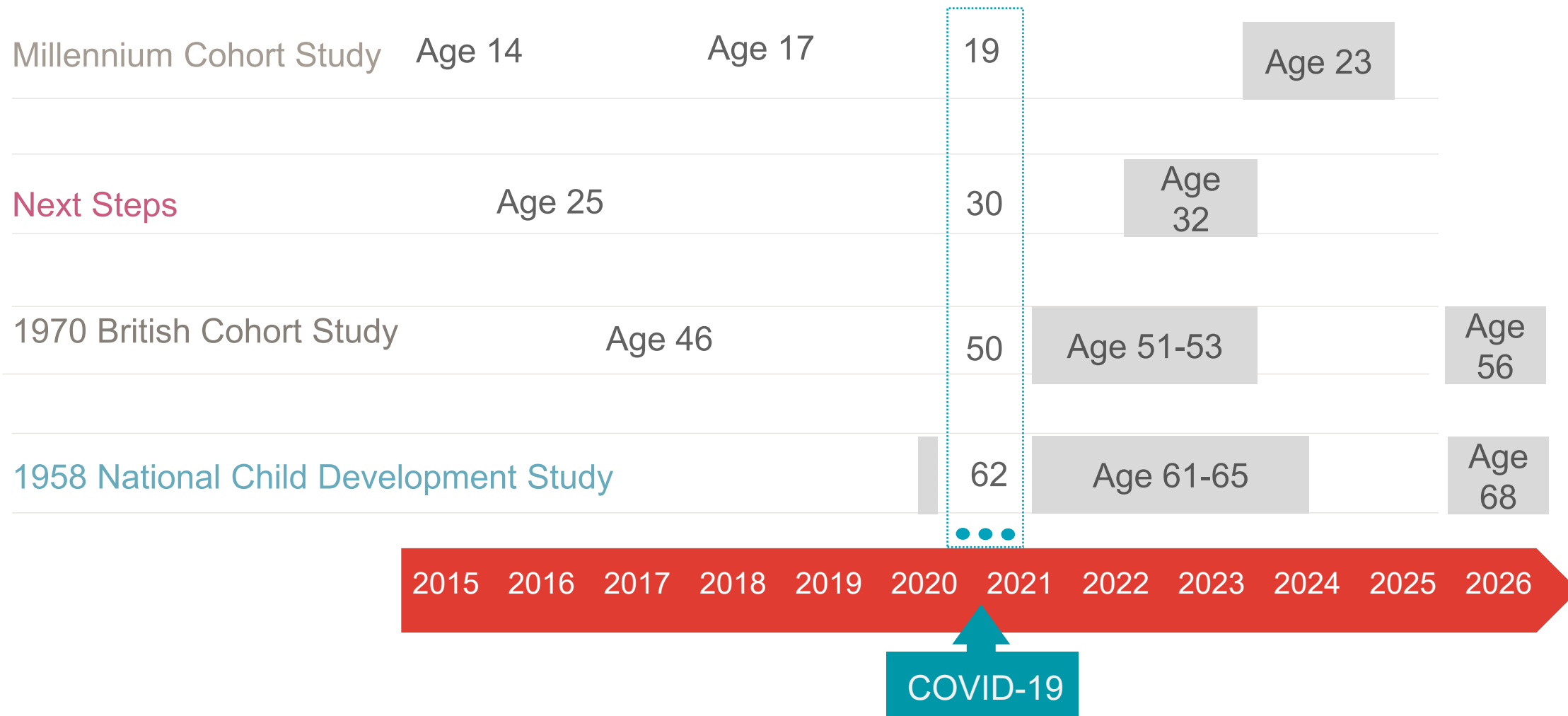
CLS core study timelines



Typical information covered

 Birth	 School years	 Adult
<p>Household composition</p> <p>Parental social class</p> <p>Obstetric history</p> <p>Smoking in pregnancy</p> <p>Pregnancy (problems, antenatal care)</p> <p>Labour (length, pain relief, problems)</p> <p>Birthweight, length</p>	<p>Household composition</p> <p>Parental social class</p> <p>Parental employment</p> <p>Financial circumstances</p> <p>Housing</p> <p>Health</p> <p>Cognitive tests</p> <p>Emotions and behaviour</p> <p>School</p> <p>Views and expectations</p> <p>Attainment</p>	<p>Household composition</p> <p>Employment</p> <p>Social class</p> <p>Income</p> <p>Housing</p> <p>Health (including biomarkers)</p> <p>Well-being and mental health</p> <p>Health-related behaviour</p> <p>Training and qualifications</p> <p>Basic skills</p> <p>Cognitive tests</p> <p>Views and expectations</p>

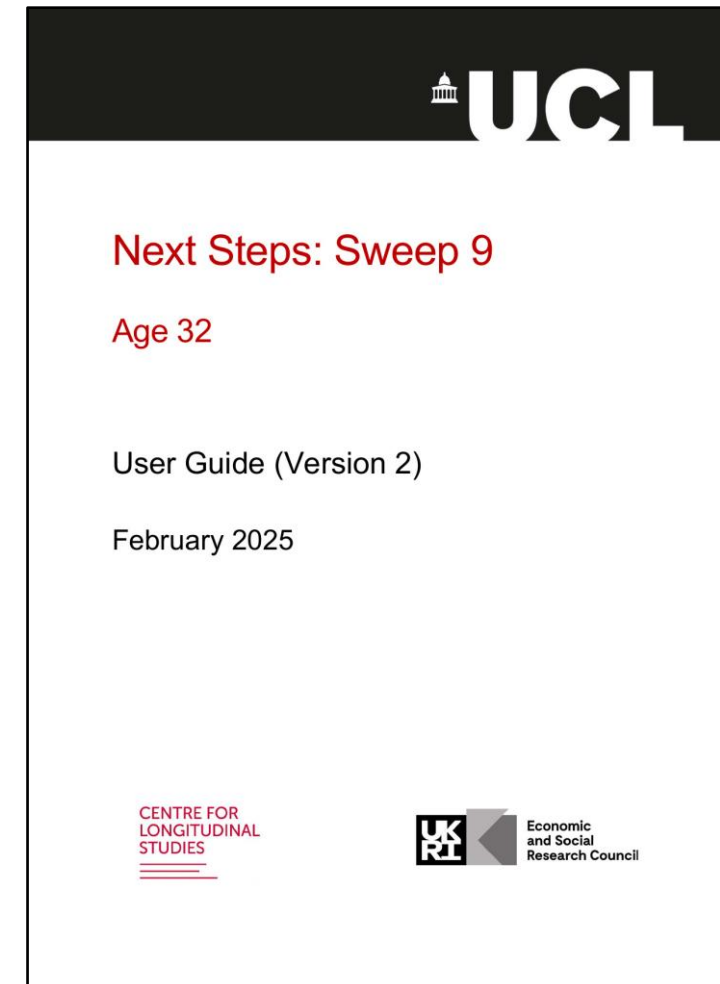
Core data collections 2015-2026



Next Steps age 32 health data

Available now

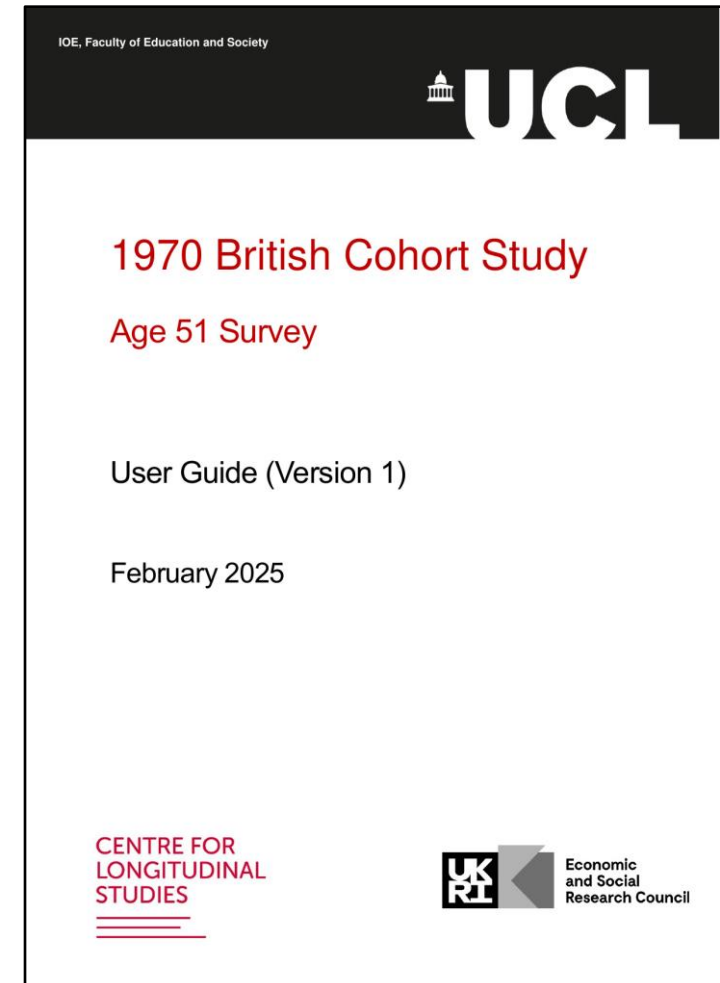
- General/longstanding health problems.
- COVID-19.
- Height/weight.
- Substance use.
- Sleep.
- Diet and exercise.
- Pregnancy histories, fertility treatments and family planning.
- Saliva collection for DNA extraction and genotyping.



BCS70 age 51-53 health data

Available now

- General/longstanding health problems.
- Health conditions.
- COVID-19.
- Height/weight.
- Substance use.
- Sleep, diet and exercise.
- Drinking and smoking.
- Menstruation, gynaecological problems and menopause.
- Sterilisation/vasectomy.
- Fertility.

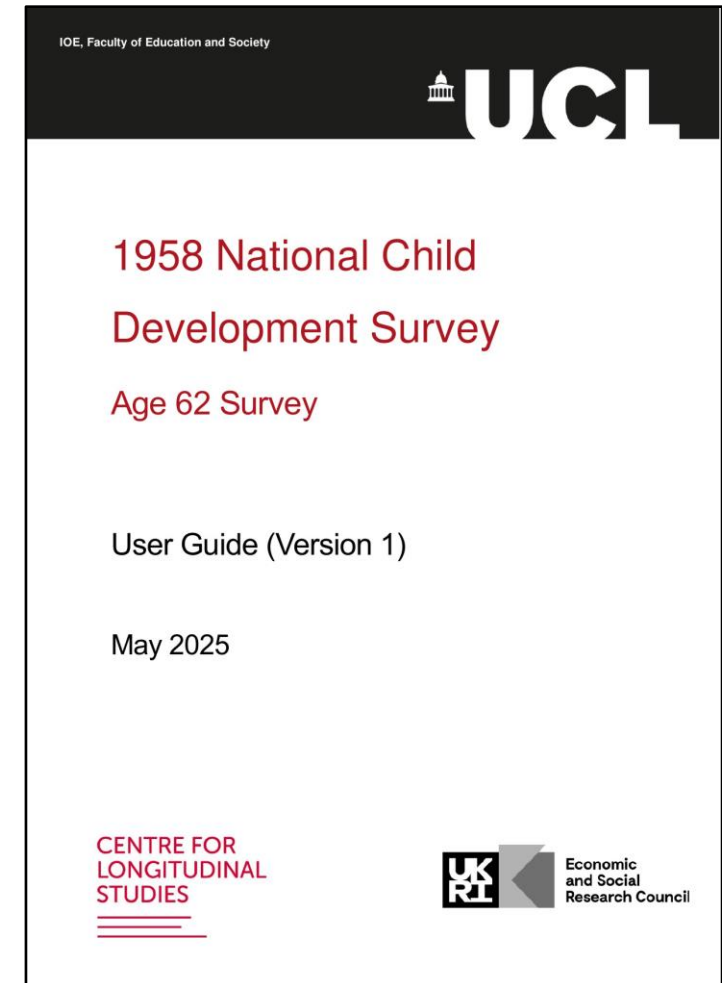


NCDS age 61-65 sweep health survey data

Available soon

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- General/longstanding/physical health problems.
- Health insurance.
- COVID-19.
- Height/weight.
- Substance use.
- Sleep, diet and exercise.
- Pain.
- Gynaecological problems.
- Hearing.
- Vision.
- Dental health.



NCDS age 61-65 biomedical data

Available soon

Nurse visit – bio-measures	Online diet questionnaire
Prescribed medications	Oxford WebQ
Seated and standing blood pressure	24-hour recall of food and drink consumption on two days
Maximal grip strength	Days randomly selected from the seven days following the nurse visit
Blood sampling (biomarkers, DNA)	Nutrient intake automatically derived
Anthropometry (weight, body fat, waist, hip)	
Timed normal walk	
Standing balance: Leg raise	

Adult biomedical data collections

Cohort	Age	Data available
NCDS	44-45	Yes (UKDS)
	61-65	Soon
BCS70	46	Yes (UKDS)

Enormous scientific opportunities:

- Single cohort analysis (e.g. life course determinants of health).
- Cross-cohort analyses (e.g. trends in health, its determinants and consequences).

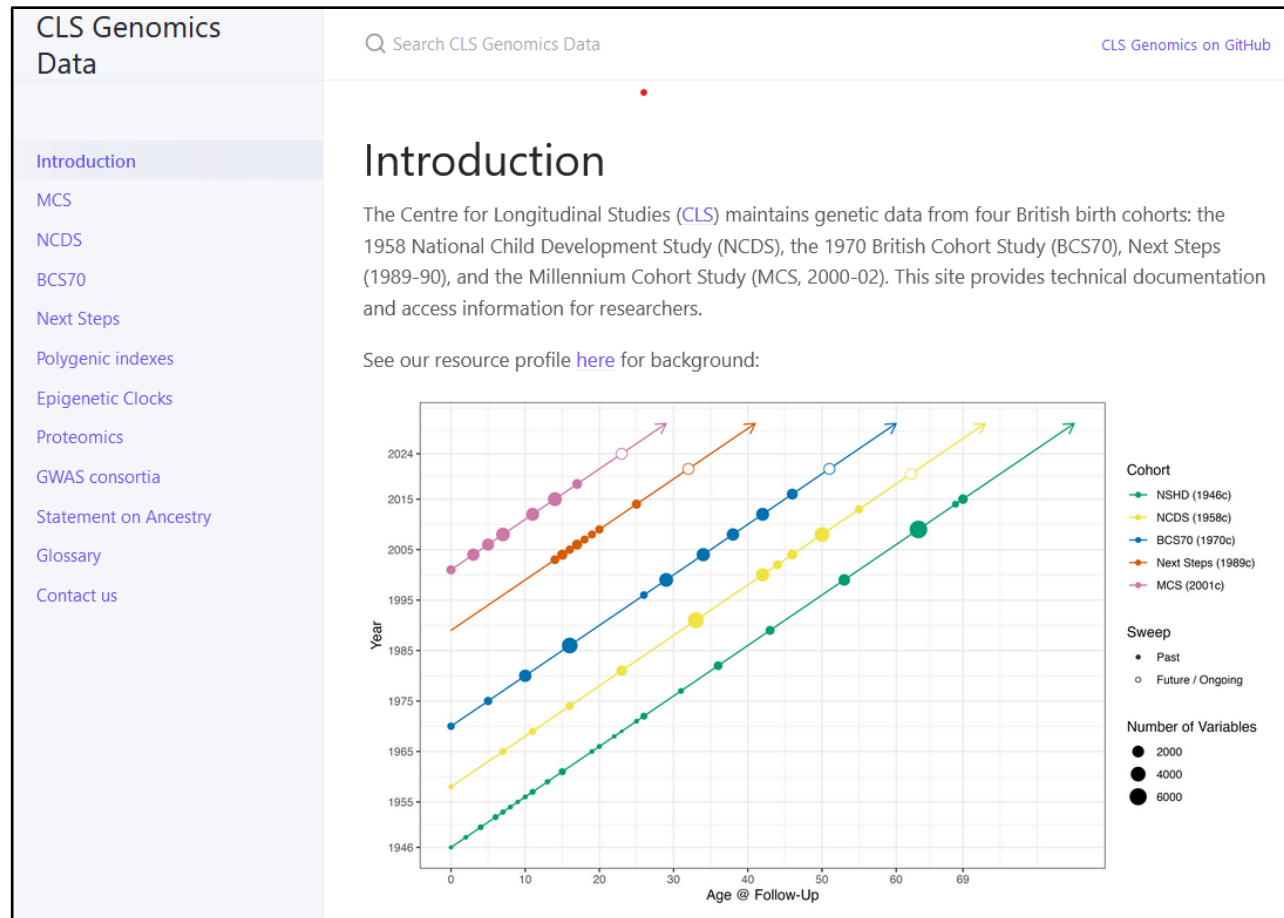
Biomarkers in NCDS and BCS70

	NCDS (44-45)	NCDS (61-65)	BCS70 (46)
Total and HDL cholesterol	✓	✓	✓
Triglycerides	✓	✓	✓
C-reactive protein (CRP)	✓	✓	✓
Glycated haemoglobin (HbA1c)	✓	✓	✓
Insulin-like growth factor 1 (IGF-1)	✓		✓
Total and allergen-specific immunoglobulin E	✓		
Fibrinogen	✓		
Tissue plasminogen activator (t-PA)	✓		
Von Willebrand factor (9vWF)	✓		
Serum 25-hydroxyvitamin D	✓		
Fibrin D-dimer	✓		
Ferritin			✓
Cytomegalovirus			✓
Red blood cell count			✓
Metabolic biomarker profiles		✓	

Linked administrative health data in the cohorts

Country	Study	Health admin data	Access
England	NCDS, BCS70, Next Steps, MCS	Hospital Episodes Statistics (HES)	Available via UKDS
	All studies	HES, Mental Health Services, Cancer Registrations and other health datasets	Available via UKLLC
Scotland	MCS	Inpatient, Outpatient, Birth Records, Immunisation, Prescribing Information, Child Health Review	Available via UKDS
	NCDS, BCS70	Inpatient, Outpatient, Maternity inpatient, Prescribing Information	Available via UKDS
Wales	MCS	Up to age 11 – Health, Emergency Hospital inpatient (PEDW), Primary Care General Practice, Welsh Demographic Service	Available via UKDS
		Cohort members and parents	Available via SAIL
		Cohort members up to age 14 and parents	Available via UKDS

Genetic data



- Genetic data available for all cohorts (NCDS, BCS70, Next Steps, MCS).
- Free of charge.
- Epigenetic data available for NCDS and BCS70.
- Apply via CLS DAC.
- Polygenic scores available now via CLS DAC for some traits: education, cognition, externalising.
- Full PS release on UKDS later this year: multiple health/social phenotypes.

<https://cls-genetics.github.io>

COVID-19

- Aimed to understand economic, social and health impacts.
- Five national longitudinal cohort studies; ages 19–74.
- Surveys:
 - W1 May 2020, W2 Sept-Oct 2020 and W3 Feb-March 2021.
 - Wide range of topics including family, employment, home schooling, mental health during lockdown, other effects of the pandemic.
- Serology study:
 - Over 10,000 finger-prick blood samples returned, April-July 2021.
 - N-assay (naturally occurring antibodies through exposure to virus); S-assay (antibodies occurring following vaccination).
- More info on CLS website ([link](#); [link](#)); data available via UKDS ([link](#); [link](#)).

Additional cohorts

Early Life Cohort Feasibility Study ([link](#)):

- Testing the feasibility of a new UK-wide birth cohort study.
- Collected data on ~2,000 families of babies born in 2022.
- Data available soon via UKDS.

Children of the 2020s ([link](#)):

- Nationally representative birth cohort study of babies from ~8,500 families born in 2021 in England.
- Focus on family, early education and childcare determinants of early school success.
- Wave 1 in 2022 (9 months old) (data available via ONS Secure Research Service ([link](#))); four subsequent waves, up to age 5.

Additional cohorts

COVID Social Mobility and Opportunities (COSMO) ([link](#)):

- Cohort study of over 12,000 students in England who were in Year 11 (age 15/16) in 2020/21; includes data from parents.
- Exploring disruption to schooling during the pandemic and longer-term educational and employment inequalities.
- Wave 1 in 2021/2022, wave 2 in 2022/2023 (data available via UKDS ([link](#))).

Thank you.

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