

Birth Cohort Studies - Health Measures

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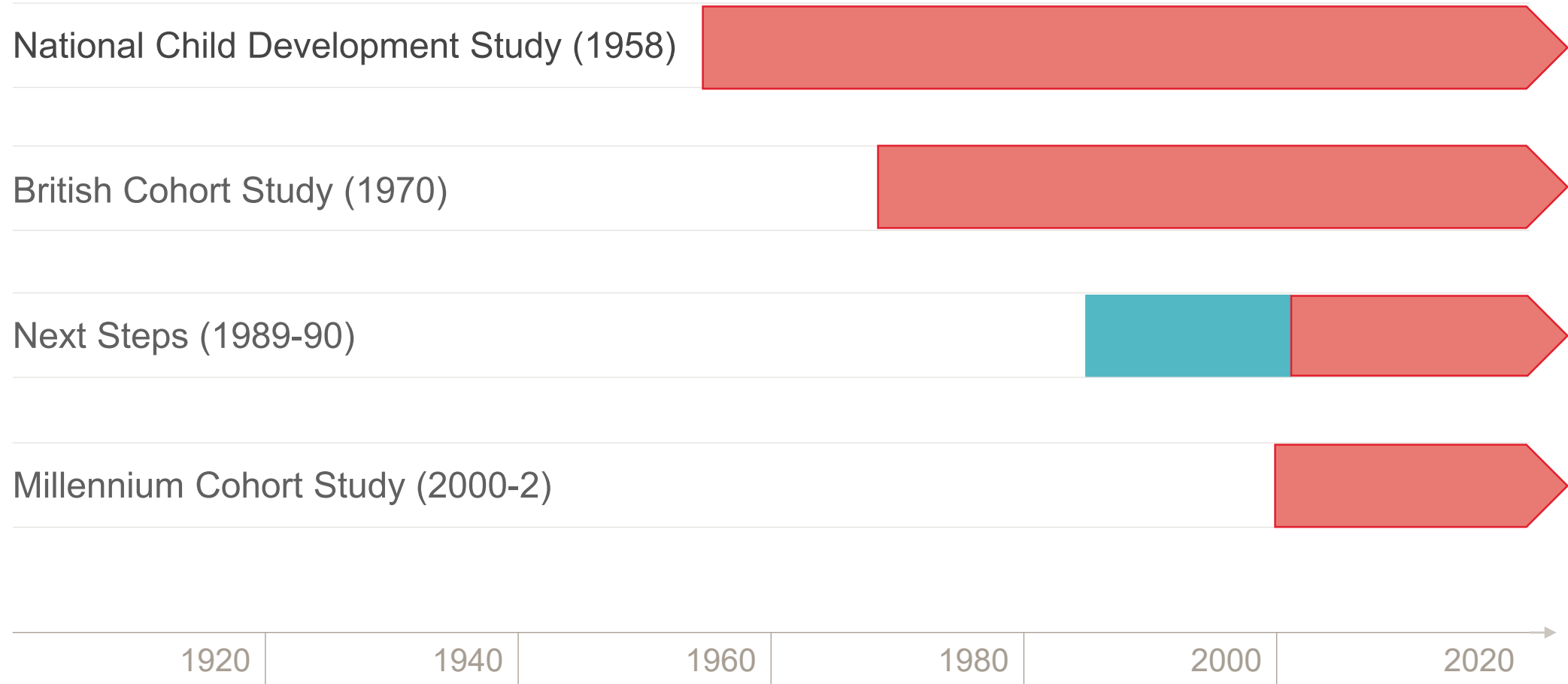
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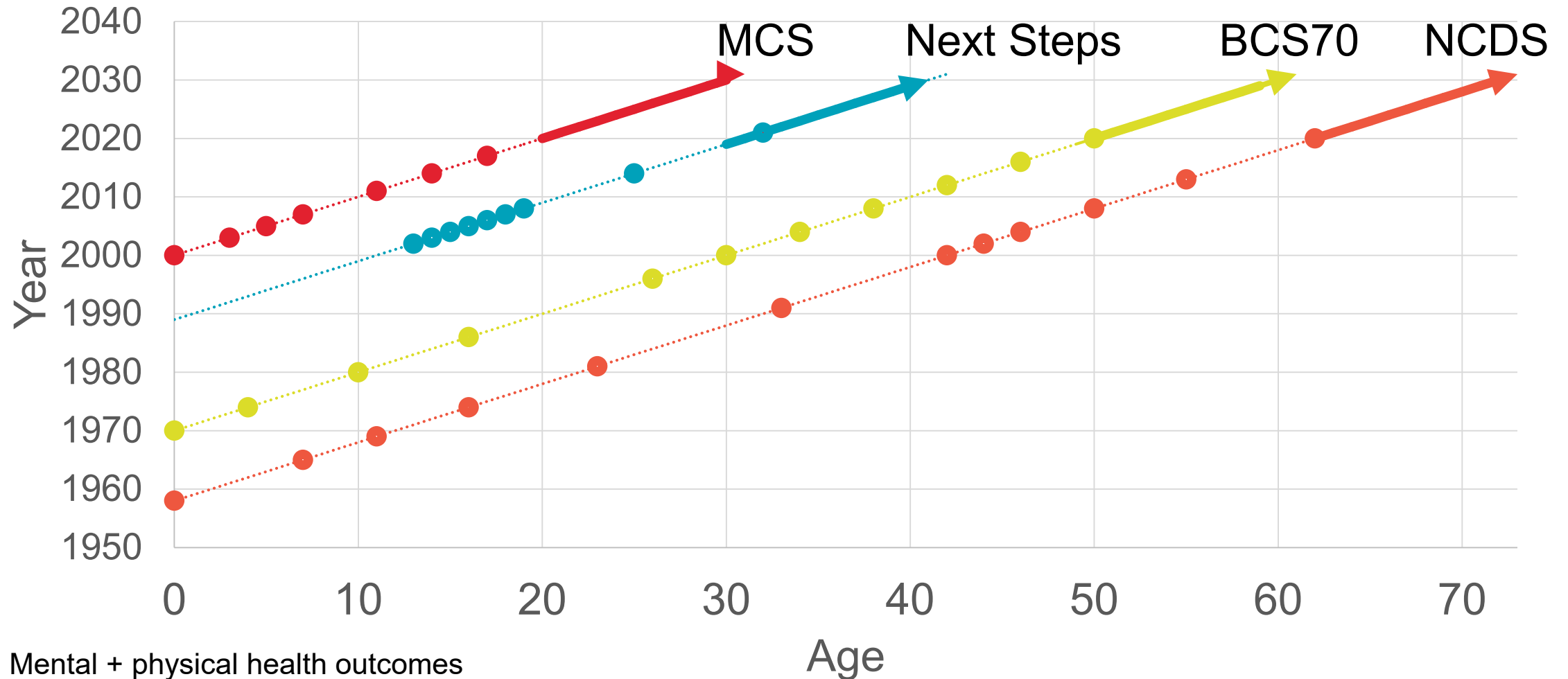
What we do at CLS (ESRC funded)

- Run major national longitudinal studies
 - Follow thousands of people across life
 - Collect extensive & rich data
- Provide free data to research community (see [link](#), UK Data Archive)
 - Documentation, guidance & training
 - Researchers can input on the data we collect (consultations)
- Conduct research
 - Multidisciplinary, substantive & methodological (survey and statistical)

Follow-up across life, N>16,000



Study timelines and future 2020-2030



Mental + physical health outcomes

Social and biological exposures

Note ongoing harmonisation programmes ([CLOSER](#)): physical activity, diet, cognition, overcrowding, psych

Typical information covered



Birth



School years



Adult

Household composition

Parental social class

Obstetric history

Smoking in pregnancy

Pregnancy
(problems, antenatal care)

Labour
(length, pain relief, problems)

Birthweight, length

Household composition

Parental social class

Parental employment

Financial circumstances

Housing

Health

Cognitive tests

Emotions and behaviour

School

Views and expectations

Attainment

Household composition

Employment

Social class

Income

Housing

Health (including biomarkers)

Well-being and mental health

Health-related behaviour

Training and qualifications

Basic skills

Cognitive tests

Views and expectations

The long shadow cast by childhood physical and mental problems on adult life

Alissa Goodman^a, Robert Joyce^a, and James P. Smith^{b,1}

Cigarette Smoking in Pregnancy: Its Influence on Birth Weight and Perinatal Mortality

N. R. BUTLER, H. GOLDSTEIN, E. M. ROSS

Work-family life courses and markers of stress and inflammation in mid-life: evidence from the National Child Development Study

Rebecca E. Lacey,^{1*} Amanda Sacker,¹ Meena Kumari,² Diana Worts,³ Peggy McDonough,³ Cara Booker,² and Anne McMunn¹

Time trends in adolescent mental health

Stephan Collishaw,¹ Barbara Maughan,¹ Robert Goodman,² and Andrew Pickles³

Life course trajectories of alcohol consumption in the United Kingdom using longitudinal data from nine cohort studies

Annie Britton^{1*}, Yoav Ben-Shlomo², Michaela Benzeval^{3,4}, Diana Kuh^{1,5} and Steven Bell¹

Factors associated with childhood cancer in a national cohort study

J. Golding^a, M. Paterson^a & L.J. Kinlen²

How active are our children? Findings from the Millennium Cohort Study

Lucy J Griffiths,¹ Mario Cortina-Borja,¹ Francesco Sera,¹ Theodora Poulidou,¹ Marco Geraci,¹ Carly Rich,¹ Tim J Cole,¹ Catherine Law,¹ Heather Joshi,² Andrew R Ness,³ Susan A Jebb,⁴ Carol Dezateux¹

Childhood Risk Factors for Lifetime Anorexia Nervosa by Age 30 Years in a National Birth Cohort

DASHA E. NICHOLLS, M.B.B.S., M.D., AND RUSSELL M. VINER, M.B.B.S., PH.D.

Breastfeeding and Hospitalization for Diarrheal and Respiratory Infection in the United Kingdom Millennium Cohort Study

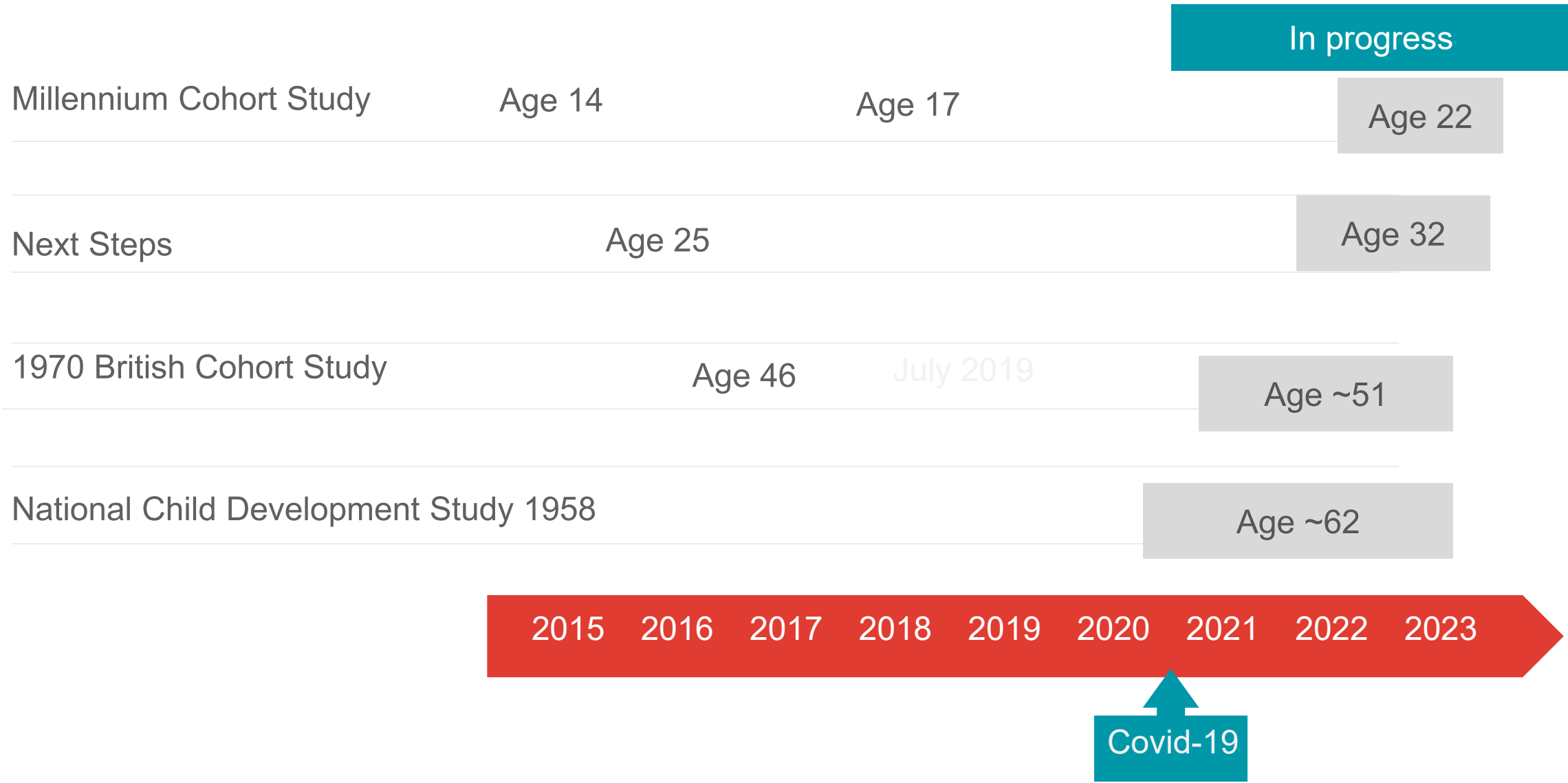
Maria A. Quigley, MSc^a, Yvonne J. Kelly, PhD^b, Amanda Sacker, PhD^b

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Socioeconomic inequalities in blood pressure: co-ordinated analysis of 147,775 participants from repeated birth cohort and cross-sectional datasets, 1989 to 2016

David Bann^{1*}, Meg Fluharty¹, Rebecca Hardy² and Shaun Scholes³

At a glance: core data collections 2015-2020+



Adult biomedical data collections

Cohort:	Age	Data available
NCDS 1958	44/45y	Yes (UKDS)
	~62y	~2023 (late)
BCS 1970	46y	Yes (UKDS)

Enormous scientific opportunities (both hypothesised and unforeseen):

- Single cohort analysis (eg, life course determinants of health)
- Cross-cohort analyses (eg, trends in health, its determinants + consequences)

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BCS70 Age 46 Survey Content (N=8,581)



- Questionnaire:
 - Household composition, relationships:
 - Finances and employment:
 - Health, well-being and cognition:
 - Physical & mental health, mental wellbeing, medical care, medication, smoking, drinking, diet, exercise, cognitive function (as per NCDS Age 50)
 - Word list recall – immediate and delayed memory; Animal naming – executive function; Letter cancellation – concentration / attention to detail



- Nurse measures:
 - Anthropometry, physical function (grip, balance), blood pressure (sitting), blood sample, accelerometry (ActivPal for 7 days)
- Online diet questionnaire (Oxford WebQ: 2x24 hour recall)



Update: Linked health administrative data in the cohorts

Country	Study	Data set / information	Access
England	NCDS, BCS, Next Steps	Hospital Episodes Statistics (HES) 1997-2017 - Admitted Patient Care (APC) - Critical Care (CC) – linked to APC - Accident & Emergency (A&E) - Outpatient Care (OP)	Available at UKDS Link via Secure Server
Scotland	BCS, NCDS, MCS	Scottish Medical Records (SMR) - Inpatient - Outpatient - Birth and Neonatal Records - Prescribing Information - Maternity - Immunisations (SRS), Child Health Review	Available at UKDS via Secure Server
Wales	MCS	- Health data assets from SAIL Databank (e.g. emergency department, outpatient, COVID data) up to age 14 and for cohort members' parents - Hospitalisations & no. of diagnoses from ICD 10 chapter codes up to age 11	Available at Secure Anonymised Information Linkage (SAIL) Databank Available at UKDS via Secure Server

Coming soon:

- HES data from NHS Digital linked to MCS
- HES refresh: new A&E, APC, CC, OP including COVID-19 data
- CLS will refresh the Welsh health dataset linked to MCS (2001-2012) currently available at the [UKDS](#)

More information available cls.ucl.ac.uk, including HES and SMR user guides and introductory training webinar video

Update: genetic data

- 1958 cohort (NCDS): now available, multiple chips used (single QC'd dataset forthcoming)
- 1970 cohort (BCS): expected genotyping in 2021
- 1989-90 cohort (Next Steps): planning for 2023
- 2000-2 cohort (MCS): now available, single chip ([Infinium Global Screening Array](#))
 - Trios (cohort, mother, father)
- New data access system (typically <1 month for a response, simple form) [link](#)
 - In future: polygenic scores for multiple phenotypes
 - Very exciting future space for research across social & health sci (eg see [link](#))

Update: COVID-19 data

- possible impacts of pandemic on multiple aspects of life; we need empirical evidence to inform this + longitudinal data likely important
 - five national longitudinal cohort studies were surveyed
 - 19y – 74y
 - 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 and an open question on affects of the pandemic
 - data on UKDS [link](#) and overview of content, questionnaires and user guide at CLS [link](#)

COVID-19 survey serology study

- participants who took part in one of three COVID-19 Surveys were invited to provide a finger-prick blood sample
- two antibody tests conducted - N-assay and S-assay
 - N-assay more likely to identify naturally occurring antibodies through exposure to virus
 - S-assay more likely to identify antibodies occurring following vaccination
- over 10,000 blood samples returned
- same antibody tests conducted in multiple longitudinal studies including ALSPAC, USoc, ELSA, TwinsUK, 1946 cohort - funded by National Core Studies
- Data available end July 2021

Update: 3 new cohorts?!

- Yes!

Early Life Cohort Feasibility Study

- a two-year ESRC funded project starting in April 2021 that will test the feasibility of a new UK-wide birth cohort study
- will recruit several thousand new babies, collecting information about their families and their development
- evaluation early 2023 and if judged to be successful, commissioning of a new, larger main study is anticipated in 2024-5
- extensive UK wide project team and project partners

Children of the 2020s Study

- a new nationally representative birth cohort study of babies in England which has been commissioned by the Department for Education (DfE)
- will answer important scientific and policy questions regarding the family, early education and childcare determinants of early school success
- will include babies born April - June 2021, and seeks to recruit over 8,000 families in early 2022
- consists of a five-wave longitudinal survey of children from nine months to five years

COVID Social Mobility and Opportunities (COSMO) study

- a new cohort study of current year 11 (15/16y) students, which will investigate the educational and employment inequalities brought about by the COVID-19 crisis
- UKRI funded, led by researchers from the UCL Centre for Education Policy and Equalising Opportunities and the Sutton Trust, in collaboration with CLS
- largest study of its kind – 12,000 young people to take part
- will explore disruption to schooling during the pandemic as well as longer-term educational and career outcomes

Thank you! Any questions?

Research project to investigate long COVID

- to help improve the understanding of the risk factors, symptoms and treatment of the long term effects of COVID-19
- utilising information collected from more than 60,000 people who are taking part in 11 of the UK's longitudinal studies
- research team is based across 13 institutions including CLS
- part of Longitudinal Health and Wellbeing National Core Study

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Launched in February 2021
Funded by NIHR and UKRI

Covid-19 data collections, 2020 onwards

- Coverage (questionnaire [link](#)):

Topics covered:

- Physical health (including COVID-19)
- Time-use
- Household composition, relationships and caring
- Pregnancy, children, school and childcare
- Housing and financial situation
- Finances and benefits
- Employment (pre- and post- outbreak)
- Education (pre- and post- outbreak)
- Health behaviours
- Social contact and social support
- Loneliness and mental health
- Trust
- COVID-19 experiences (open text question)
- Linkage to COVID-19 symptom tracker app

- Response rate for wave 1 ~37% [tbc]; response weights provided

- Initial findings

- Chapters

- 1) Prevalence of COVID 19, symptoms and testing
 - 2) Time use and parenting
 - 3) Education HE/ FE and apprenticeships (MCS mainly/ only)
 - 4) Financial impacts and labour market outcomes
 - 5) Changes in self-rated health and health behaviours
 - 6) Loneliness, social isolation and mental health
 - 7) Access to care and health services
 - 8) Housing, local environment, and access to green space
 - 9) In their own words – how study members described their experiences and expectations
 - 10) Families, social support, and conflict
 - 11) Attitudes, compliance and political trust

- Data expected to be sent to UKDS in summer 2020

MCS update: genetic data (from age 14 saliva samples)

- Saliva samples collected from cohort members + resident biological parents
- Oragene DNA kit - assayed using Illumina [Infinium Global Screening Array](#)
- N saliva samples:

Cohort member	9360
Main parent	9195
Second parent	4936
TOTAL	23,491
- Genotyping completed (Bristol); access via special Access Committee (end 2020)
- Other forthcoming data:
 - MCS7, Age 17 survey - Data deposit at UKDS ~ late 2020



1958 cohort: measures collected at age 61/2y (fieldwork 2019-)

- -> within (44/45y) & cross-cohort comparability, new research areas:
- Self-report:
 - Health conditions, physical & mental health, mental wellbeing, health behaviours
 - Online diet questionnaire
 - 1/3 life history questionnaire
- Measured:
 - Cognition (memory, verbal fluency, attention/mental speed)
 - Anthropometrics, body fat %
 - Physical function (grip, balance, walking speed)
 - Blood pressure (resting, standing)
 - Blood (lipids, glucose, stored samples for 'omics, epigenetics etc)

Currently halted due to covid-19 pandemic

HES - Linkage

	Number in sweep*	Gave consent (% of in sweep)	Has matched data (% of consented)
Next Steps	7,707	4,895 (63.5)	4,579 (93.5)
BCS70	9,841	7,048 (71.6)	5,488 (77.9)
NCDS	9,790	7,065 (72.2)	6,188 (87.6)

* Sweep in which consent was sought for linkage:

- Next Steps: Age 25 Survey
- BCS70: Age 42 Survey
- NCDS: Age 50 Survey

SMR - Linkage

Only linked to cohort members who had ever lived in Scotland

	'Ever Scottish' number in sweep*	Gave consent (% of ever-Scottish in sweep)	Has matched data (% of consented)
MCS	2370	1494** (60.7)	1481 (99.3)
BCS70 (Data to be released)	994	693 (69.7)	542 (78.2)
NCDS (Data to be released)	1482	944 (63.7)	785 (83.2)

* Sweep in which consent was sought for linkage:

- MCS: Age 7 Survey (consented by their parents)
- BCS70: Age 42 Survey
- NCDS: Age 50 Survey

** Linked data excluded if MCS cohort members themselves refused consent at age 17