

# The Millennium Cohort Study

Kate Smith and  
Heather Joshi  
Centre for Longitudinal Studies  
Institute of Education

The Millennium Cohort Study is the latest in the line of British birth cohort studies. MCS resembles its predecessors which follow people born in 1946, 1958 and 1970 in the intention to become multi-purpose longitudinal data resource charting many aspects of individual's lives over time. The families of a sample of around 20,000 babies are being interviewed during 2001–02, when eligible babies reach 9 months, to establish the conditions from which they set out in life. The survey contrasts with the previous cohort studies in various ways. Instead of taking all births in one week, the sample of births is spread over a year; the births are from a selection of electoral wards, thereby enabling eventual analysis by neighbourhood characteristics; it also over samples children living in deprived areas, wards with high ethnic minority populations and samples have been boosted in Scotland, Wales and Northern Ireland. The latter UK country has not been covered by the other studies. It interviews fathers as well as mothers, and given that its initial funding comes via the ESRC, puts a greater emphasis on socio-economic data than in early parts of the other studies. MCS has been enhanced by additional Government funding. The research team, based at the Institute of Education, aims to deposit a multi-purpose dataset for public use at the ESRC data Archive in the Spring of 2003.

## INTRODUCTION

The Millennium Cohort Study, known in the field as the Child of the New Century, was launched in 2000, ending a 30-year gap in the sequence of national longitudinal birth cohort studies for which the UK is renowned. These studies all aim to gather information on a group of people born around the same time and to link information from infancy and early life with subsequent developments, in principle into adult life. While maintaining the essential design of its predecessors, the studies of the 1946 (Douglas, 1964; Wadsworth 1991), 1958 (Butler and Bonham, 1963; Ferri (Ed), 1993) and 1970 cohorts (Chamberlain *et al*, 1975; Bynner *et al*, 1997), the Millennium Cohort has some new features. It takes a sample of births from a whole year, rather than a week, as is the case with the other studies. It covers the whole of the United Kingdom rather than just the three countries of Great Britain, with boosted samples in Scotland, Wales and Northern Ireland to allow adequate sample sizes for within country analysis. The sample is geographically clustered, with an over-representation of deprived areas, which will increase the scope for including community-level information in analysis and for the study to be used in the national evaluation of Sure Start.

The Government decided that the millennium was a good occasion to add a new birth cohort study to the British heritage of longitudinal data resources, and made funds available to the ESRC to initiate the Millennium Cohort. Co-funding from government departments, in a consortium led by ONS, has subsequently augmented the budget for the first and second sweeps. The other members of the consortium are: Department for Employment and Skills, Department of Health and Department for Work and Pensions, along with the devolved administrations of Scotland, Wales and Northern Ireland.

The Principal Investigator contract for the first sweep of the MCS was awarded to an academic consortium based in three institutions: the Centre for Longitudinal Studies (CLS) at the Institute of Education; the Department of Community Epidemiology and Public Health and the Institute of Child Health, both at University College London; and the

Department of Psychology, City University. The scientific management of the project is based at CLS. The fieldwork contract has been awarded to the National Centre for Social Research (NatCen), who also had recent experience in interviewing the 1958 and 1970 cohorts.

Work at the Centre for Longitudinal Studies was funded from August 2000 by the ESRC following a tendering process announced at the end of February. Both before and after the announcement of the award, the timetable was very tight, if children born in the year 2000 were to be included.

Accordingly, the sample for the survey has been defined as children aged 9 months in England and Wales born between September 2000 and August 2001, and in Scotland and Northern Ireland between December 2000 and November 2001, living in selected wards. The sample is being provided by the Department of Work and Pensions (DWP, formerly DSS) from Child Benefit Records. The target sample is 20,646 children.

Interviews for the first sweep take place when each child is aged 9 months. The fieldwork therefore started in June 2001. NatCen is conducting the interviews in England, Wales and Scotland. In Northern Ireland interviewing has been sub-contracted to the Central Survey Unit of the Northern Ireland Social Research Agency (NISRA).

## RATIONALE

Understanding the social conditions surrounding birth and early childhood is increasingly appreciated as fundamental to the study of the whole life course. This applies across a wide spectrum, from looking at the origins of social exclusion through investigation of the influence of early circumstances on health over the life course to providing evidence for major policy initiatives such as "Sure Start". The initiation of the MCS presents an exceptional research opportunity to investigate the all-important first year of life and potentially resolve many of the research questions about its long-term impact. These include issues of central policy interest such as the foundations of social capital and cohesion.

Major questions about the prospects for children born in 2000–2001 concern poverty and wealth, the quality of family life and its support by public policy and the broader community. The health and wellbeing of parents and infants will be located in the context of the rich socio-economic data to be collected in the study. Issues to emerge for future sweeps of the cohort will include: advantage and disadvantage in education, health, employment and the parenting of the next generation. There is much interest in the consequences of changing family structures, and ongoing social and economic changes in the labour market, as well as changes in technology, social polarization, gender roles, and the ideology of individualism which are likely to affect different children differently, and make the unfolding lives of the new cohort different from those of their predecessors.

## OBJECTIVES

The study's broad objective is to create a new multi-purpose longitudinal dataset, describing the diversity of starting points from which children born in the new century are setting out on life. Government funding has extended the objectives to provide control cases for the national evaluation of Sure Start by adding 35 wards in deprived areas of England to the sample – adding about 2,600 extra children. The devolved administrations of Wales, Scotland and Northern Ireland have also invested additional funds to boost the samples in these countries of the UK. The aim of this is to achieve adequate numbers for analysis within the individual countries.

The particular objectives of the first MCS survey are:

1. To chart the initial conditions of social, economic and health advantages and disadvantages facing new children in the new century, capturing information that the research community of the future will require.

2. To provide a basis for comparing patterns of development with the preceding cohorts.
3. To collect information on previously neglected topics, such as fathers' involvement in children's care and development, and the effects of season of birth within a year.
4. To investigate the wider social ecology of the family, including, social networks, civic engagement and community facilities and services.

Additional objectives, such as the recording of adaptation of other family members to the new baby and aspirations for the baby's future have not been implemented in the first sweep. Neither are grandparents well covered. These intended areas of questioning have had to be sacrificed, in the first sweep at least, due to the limits of interview time. The length of the total contact time (for mother and father) has been extended to an hour and three quarters. Any more would become burdensome.

The objective of studying the wider social environment of the family is being approached through assembling data from ONS Neighbourhood Statistics to add to the database, and through a survey of Health Visitors on local services. The enhancement of health information has started with a series of feasibility studies. These enhancements include a supplementary postal survey to mothers who have received assisted reproduction treatment and the linking of hospital records of the delivery of the MCS baby for all mothers who have given consent. Further details of these activities are outlined below.

The government consortium is funding these enhancements of ecological and health data as well as the extension on Sweep 1 interview time and boosts to the sample and also, in due course the preparation, of reports and analyses, as well as making contributions to future sweeps.

## SAMPLE DESIGN

### Timing of Cohort births and age at interview

As outlined above, the population for the study is being drawn from a sample of a full year's births with interviews taking place when each baby reaches 9 months of age. Eligible birth dates for England and Wales range from September 2000 to August 2001, so that the children in the sample will belong to the same academic year. In Scotland and Northern Ireland the eligible birthdays started 3 months later (from December 2000) to avoid overlap with the Infant Feeding Survey (already taking large samples of September-October births in those countries).

Fieldwork started in June 2001 in England and Wales, when babies born at the beginning of September 2000 reached 9 months of age. The survey in Scotland and Northern Ireland was launched in September, when the babies born at the beginning of December turned 9 months. Interviewing in all four countries will continue for a year from commencement.

### Sampling: the selection of wards

The sample is geographically clustered, and based upon electoral wards, with overrepresentation of wards with a high minority ethnic population in England; wards with high child poverty rates in all countries; and over-sampling in Scotland, Wales and Northern Ireland generally. The ward boundaries are those obtaining in 1998 for which the Oxford index of (child) deprivation was available. Sparsely populated wards were amalgamated with their neighbours before the sample was drawn, with help from ONS. All babies with eligible birth dates resident in the sampled wards at 9 months of age are eligible for the survey. The size of the sample is therefore determined by the sampling fractions of the wards (and expected response rates). Disadvantaged areas were defined as those children living in wards which fell into the upper quartile (i.e. the poorest 25 per cent of wards) of the ward-based Child Poverty Index.

The original target sample size for the study was 15,000 babies. Subsequent decisions to boost the sample in Wales, Northern Ireland and Scotland as well as deprived areas of England increased the final target sample of babies to over 20,000 (see Table 1).

### Sampling: the use of Child Benefit Records

The study has taken advantage of the offer from DWP to make Child Benefit records available to find the eligible families and draw the sample. It had originally been assumed there was no alternative to use of birth registration records for this purpose. The DWP route was favoured because of concern about response to the postal opt-in involved in drawing a sample from birth registrations. The representation of socially excluded groups, including those with poor literacy or poor grasp of English, could be compromised with an opt-in. DWP ask people if they want to opt out, which gives marginal cases and people with low literacy the chance to agree to join in when they meet the interviewer.

Because the Child Benefit records will not reveal all families who have moved into the sample wards as the child approaches 9 months of age, a supplementary strategy for recruiting movers-in to sample wards through the help of Health Visitors has been devised.

### INSTRUMENT DEVELOPMENT

The survey is being carried out via CAPI (Computer Aided Personal Interview) and self-completion (also computer aided) by both the mother and (where resident) father of the cohort baby. There is no handling or measuring of the baby.

### First Pilot

Following consultations with academic and government longitudinal data users, the teams at NatCen and CLS jointly developed a draft questionnaire for use in the first pilot in January 2001. This pilot was conducted as a paper interview and computer aided self-completion

instrument (CASI) in order to assess the timing of the instrument before the major work to convert the interview schedule into CAPI format. The pilot sample size was boosted from 30 to 60 thanks to the ONS consortium funding.

The overall response by parents to the pilot survey was positive, however the instruments proved to be substantially over the target time of 105 minutes. As a result reductions were made to the interview and self-completion in consultation with scientific advisors.

### Dress Rehearsal Pilot

A second pilot took place during April 2001 on 91 families with the revised instruments. The interview for this pilot was fully computer based (CAPI and CASI). As a 'dress rehearsal' for the main stage, all the contact and administrative processes were also tested. Thirteen wards were selected for this pilot, including one in each of Wales and Scotland.

The main impression of the pilots was that respondents and interviewers had, on the whole enjoyed the experience. However, the interview, and particularly the self-completion, still proved to take too long. Interviews where translation was needed took an exceptionally long time to complete. An experiment transcribing data from the Personal Child Health Record was not sufficiently successful to take into main fieldwork, but the experimental consent form for health record linkage was well received. Loss of interviews with families who move out were found to be non-trivial, and it proved difficult to interview all the partners even where present due to the short field period the dress rehearsal was operated within.

### Giving information to informants

In addition to the initial invitation letter and leaflet sent by the DWP, use of a second advance letter sent by the interviewer, shortly before their first visit to the family, proved very successful in the dress rehearsal pilot and has been adopted in the main stage. This letter serves to remind the family of the survey and introduce their interviewer by name.

**Table 1**

**Millennium Cohort Sample Structure by stratum and country: babies aged 9 months and wards**

United Kingdom

Country	Original target sample	Boost from original number	Final target sample			
			Total	Non-disadvantaged wards	Disadvantaged wards	High Minority Ethnic wards
England						
Babies	10,500	2,646*	13,146	5,250	5,271	2,625
Wards			200	110	71	19
Wales						
Babies	1,500	1,500*	3,000	750	2,250	Na
Wards			73	23	50	
Scotland						
Babies	1,500	1,000	2,500	1,250	1,250	Na
Wards			62	32	30	
Northern Ireland						
Babies	1,500	500*	2,000	750	1,250	Na
Wards			63	23	40	
<b>Total United Kingdom</b>						
Babies	<b>15,000</b>	<b>5,700</b>	<b>20,646</b>	<b>8,000</b>	<b>10,021</b>	<b>2,625</b>
Wards			<b>398</b>	<b>188</b>	<b>191</b>	<b>19</b>

- Boost to sample all in deprived wards.
- Note 'ward' includes some amalgamations of small electoral wards.

In order to comply with recommendations made by the Medical Research Ethics Committee, a simplified leaflet has also been produced for interviewers to give to respondent families. Translations of both the advance letter to be sent by the interviewer, and the new simplified leaflet into common non-English languages are also provided to all interviewers. The list of languages for translation is: Bengali, Gujarati, Kurdish, Punjabi, Somali, Turkish and Urdu. Where there is no-one accessible in the household to translate the interview, an interviewer speaking the required language is provided where available. The DWP letter and the leaflet sent with it are also translated into Welsh.

## CONTENT OF SURVEY

The survey attempts to establish, mostly from both parents a wide range of information about their own backgrounds, circumstances and health, and their attitudes on a number of issues, many directly relevant to parenthood. From one parent, usually the mother, details of the baby's health and development are also collected. A list of topics included in Sweep 1 instruments is summarized in Table 2.

**Table 2** Elements and content of the first survey

Respondent	Element	Content
<b>Mother or Father</b>	Interview	Household & family
<b>Mother</b>	Interview	Ethnicity & language Baby's father Lone parenthood Pregnancy, labour & delivery Baby's health & development Childcare Grandparents, friends & social support Parental health Education & training Employment & earnings Housing, local community & services Interests, time with & without the baby
	Self-completion	Baby's temperament & behaviour Relationship with partner Previous relationships Domestic tasks Previous pregnancies Mental health Attitudes to relationships, parenting, work, etc
<b>Father</b>	Interview	Ethnicity & language Father's involvement with baby Lone parenthood Baby's mother (if not resident) Grandparents & friends Parental health Education & training Employment & earnings Interests, time with & without the baby
	Self-completion	Baby's temperament & behaviour Relationship with partner Previous partners Previous children Mental health Attitudes to marriage, parenting, work, etc

## FIELDWORK

### Fieldwork Timetable

The fieldwork is being carried out in 16 consecutive waves. Each issued wave of fieldwork will contain babies born in a 4-weekly birth cycle,

the first wave covered births between 1 September 2000 and 28 September 2000. This rhythm of recruiting the sample has been dictated by the cycle of DWP procedures, scanning the Child Benefit database every four weeks.

The process for drawing each wave of DWP sample is as follows:

Prior to fieldwork, the DWP send opt-out letters to all parents of children with an eligible birth-date who are registered (for child benefit purposes) as living within one of the sampled wards. Batches of these letters are sent every four weeks, to families whose babies are then approximately seven months old. The letter invites parents to take part in the study and gives them the opportunity to opt-out of the study by telephoning or writing to the DWP. An information leaflet explaining the study is enclosed with these letters. Any parents who opt-out of the study are then removed from the sample, as are a few cases (ca. 1 per cent) deemed by the DWP to be 'sensitive'.

The data is sent by the DWP to CLS in two stages, a week apart, in order to ensure that any late exclusions or change of addresses can be notified as near to the start of fieldwork as possible. After the final data has been received, serial numbers are assigned to each valid case and the data is then sent to NatCen for issuing to the field.

The aim is that the fieldwork for each four-week wave should be as self-contained as possible, with the minimum amount of overlap. Interviewers have been briefed to aim to interview families when the individual baby is 9 months and 15 days old in order to standardize the data being collected as far as possible. There will be exceptions where interviewing is delayed because of tracing problems, but the window of opportunity to interview is brief; up to 11 months of the baby's age for the main interview and up to 12 months for the partner (as long as a main interview has been completed).

## FIELDWORK PROGRESS

In the early waves of interviewing so far completed, the project has on the whole been very well received in the field. The experience has, again on the whole, been a happy one for both families and interviewers alike. In the vast majority of cases, parents eligible for interview have been content to participate. The implications for achieving the sample target are still being assessed, at the time of writing, awaiting the completion of at least one full wave in Scotland and Northern Ireland. It is also, of course too early for any results. Fieldwork on Sweep 1 is due to finish in June 2002 in England and Wales and September 2002 in the case of Scotland and Northern Ireland.

## DATA ENHANCEMENTS

### Supplementing Data on Health

As mentioned above, alongside the development of the main survey a set of feasibility studies have taken place designed to enhance the collection of health data. Besides developing instruments for health questions at later Sweeps, most of these are intended to bring in information that has been collected elsewhere to reduce the burden on the interview. They include:

- *Abstracting data from the Personal Child Health Record.* It had been hoped to supplement the interview and reduce its time by taking information routinely entered in the child's record book issued by the Health Service. The pilot study found that this was impractical in the time available and given the varying forms of records held in different parts of the country. Questions on weights, immunisations etc., have therefore been put in the main questionnaire, asking the mother to refer to her PCHR for the answers.



- *Linking survey data to routinely collected health data.* The successfully piloted approach to obtaining informed consent for collecting and linking information from health records has been taken on in the main survey. A virtual working group has been set up to advise the study and exploration of the extent and quality of routinely held data has begun in England and Scotland.
- *Postal follow-up of infertility treatment.* A pilot study conducted to investigate the feasibility of mother's recall of infertility treatment has been successfully completed. The questionnaire for a postal survey of MCS mothers who report having treatment for infertility has been developed.

### Ecological Data – Neighbourhood Statistics

To enhance the interview data with information on the wider social ecology of the family, work has started on creating look up tables containing Neighbourhood Statistics and other data including metadata, which can be matched into the MCS files at a later stage. Thus far official Neighbourhood Statistics data have been matched into files containing the English, Welsh and Scottish MCS wards. There is little information about Northern Ireland at the moment. The next stage will be to add in other data such as Local Authority level information. The possibilities of adding in other contextual data, which may require copyright permission to be sought and approved before releasing it to users are also being investigated.

### Survey of Health Visitors

The study has made contact with most of the health visitors involved in the survey wards. There are plans to ask them, via a postal survey, for additional information about these localities not contained in the standard statistics. The possibilities and feasibility are under discussion and subject to consultation. They are likely to focus on the health and other services available locally to families with young children.

### DATA DELIVERY AND DISSEMINATION OF SWEEP 1 RESULTS

Because the data collection is spread over the best part of 18 months, there will be no results to report to any audience, be they informants, sponsors or the general public until well into 2003. Data from the first wave is expected to be available to the ESRC Data Archive in spring 2003. A large multi-purpose data set will then be available to any interested researcher.

CLS will produce preliminary reports and analyses, which should encourage further use of the data, and also inform preparations for the next sweep. The research team will be making preliminary reports at the earliest opportunity, again with the help of government funding, but the full range of analysis possibilities, even of the cross-section at the first sweep remain open for the wider research community to plan. They should be aware of the data destined for the Data Archive in spring 2003 and the long-sighted should be anticipating the analysis of further follow-ups.

Progress will be reported in *Population Trends*.

### FEEDBACK TO INFORMANTS

Adequate and frequent communication with the cohort families is essential to maintaining good relations and promoting future co-operation. Experiences from the 1958 and 1970 cohorts have shown that cohort members rate feedback and communication very highly. With the MCS we are in the relatively fortunate position of being able to plan for the next sweep, which means we can also plan the timing of feedback.

In addition to a dedicated website, we are also planning to send an annual celebration card to each study family asking them to confirm

their address or give us details of any move. The precise form of this has yet to be decided, but will provide a vital tool in panel maintenance.

Other planned communications include a summary of initial findings, although this will not be available until after receipt of the final data.

### FUTURE SWEEPS

With the next follow-up planned for when the children are aged 3, the Millennium Cohort will become a truly longitudinal survey. It is likely that the third sweep will take place when the children are aged 5, and all in school. The content and scope of these follow-up surveys is already under discussion by an interdisciplinary group of researchers, again co-ordinated at CLS, in consultation with other academics and government departments. The aim will be to see where the conditions of the first sweep have led, and also to lay further foundations for use in the understanding of the cohort's later lives.

### CONCLUSION

The Millennium Cohort Survey aims to give an account of the progress and setbacks of its subjects as they embark on the race of life in the twenty-first century. Although it is far too early to relay the full story, the survey teams can report that getting the study off to its start has itself been a bit of a race, against time and over many hurdles. Although the enterprise remains challenging, progress so far augurs for a successful and fascinating series of outcomes. This is thanks to the enthusiasm and co-operation of all concerned, not least the cohort babies' parents. This human document promises to prove a durable contribution to the national Heritage in commemoration of the new millennium.

Further information can be obtained from the Millennium Cohort Team at CLS:

E-mail: [mcs@cls.ioe.ac.uk](mailto:mcs@cls.ioe.ac.uk)

Internet: [www.cls.ioe.ac.uk/Mcs/mcsmain.htm](http://www.cls.ioe.ac.uk/Mcs/mcsmain.htm)

### REFERENCES

1. Butler N R and Bonham D G (1963). *Perinatal Mortality*. E & S Livingstone: Edinburgh.
2. Bynner J *et al* (1997). *Twenty-something in the 90s: Getting On, Getting By, Getting Nowhere*. Aldershot: Dartmouth Press.
3. Chamberlain R *et al* (1975). *British Births 1970, Volume 1, The first week of life*. Heinemann Medical Books.
4. Douglas J W B (1964). *The Home and the School*. MacGibbon & Kee.
5. Ferri E. (Ed) (1993). *Life at 33: the fifth follow-up of the National Child Development Study*. National Children's Bureau, City University, Economic and Social Research Council: London.
6. Wadsworth M E J. (1991). *The Imprint of Time: Childhood, History and Adult Life*. Oxford University Press: Oxford.