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# Impact of the Millennium Cohort Study

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## Why this study is significant

The MCS is the first birth cohort study to include all four UK countries. Its field of enquiry covers such diverse topics as parenting; childcare; school choice; child behaviour and cognitive development; child and parental health; parents' employment and education; income and poverty; housing, neighbourhood and residential mobility; social capital and ethnicity, and the growing fluidity of family structures. The study is providing an invaluable service to the research community in the UK and internationally, and has helped to influence social, education and health policy at local and national levels. Breastfeeding research based on MSC data has proved particularly influential. The MCS has also provided a model for cohort studies in other countries. Leading longitudinal researchers around the world have applauded the study and said it sets the benchmark against which other longitudinal child cohort studies will be measured.

## Background

The MCS is following the lives of more than 19,000 children born in the four UK countries in 2000/1. It is the most recent

of Britain's world-renowned national longitudinal birth cohort studies, which have been called the "crown jewels of social research".<sup>1</sup> The study is tracking the Millennium children through their childhood years and plans to follow them into adulthood. The four surveys carried out so far – at age 9 months, 3, 5 and 7 years – have built up a uniquely detailed dossier on the children's diverse pathways through their own early years and those of the new century.

The primary aims of the MCS are to:

- collect detailed longitudinal information on the early life circumstances of the children of the new century
- trace links to later outcomes and achievements
- generate insights that will help to improve the health, development and wellbeing of individuals in future generations.

Its other goals are to:

- create a high quality longitudinal data resource that respects respondents' rights
- provide and analyse data that meet the needs of academic

## Where is the study based?

The Millennium Cohort Study (MCS) is managed by the Centre for Longitudinal Studies (CLS), Institute of Education. CLS is an Economic and Social Research Council (ESRC) Resource Centre which also houses two of the UK's other longitudinal studies: the 1958 and 1970 birth cohort studies.

## Who funds the research?

The majority of the MCS funding comes in the form of an ESRC grant. CLS funding from the ESRC will amount to £9.03 million for the period April 2010 to March 2015. This includes £2.075m to be spent directly on surveying the Millennium cohort at age 11. A further £2.4m has been committed to the study by a consortium of government departments. This additional funding includes £1.55m dedicated to the age 11 survey. Funding from the Wellcome Trust, to enable linkage of the MCS survey data to electronic health records, will amount to about £400,000. The National Institutes of Health in the US have also provided funding to ask detailed questions about alcohol consumption.



The MCS confirms that reading to pre-school children helps them get off to a good start

research and the policy community

- permit comparison of different cohorts' experiences across time and countries
- disseminate survey findings nationally and internationally via data-sets, books, academic journal articles, conference presentations, media releases and websites.

The material gathered from the first four surveys, including linked birth records and sub-studies, has been deposited in the UK Data Archive at the University of Essex and is available to researchers free of charge.

### **How the study has been conducted**

The MCS children were selected through child benefit records to provide a proper representation of the total population, and permit analysis and comparison of certain sub-groups. Children in the three smaller UK countries were intentionally over-sampled, as were those living in areas of economic disadvantage or high ethnic minority settlement (in England only). The over-sampling gives statistical power to the analysis of minority groups. The application of weights ensures that findings are nationally representative. The scope of the MCS is therefore broader than other ostensibly similar studies.



Children in deprived areas were more likely to have an incomplete set of immunisations



The quality of the data is also unusually high because the sub-contracted fieldwork is carried out to an exacting technical specification, the fieldwork is preceded by thorough piloting, and the data are rigorously checked.

The age 11 survey in 2012 will include interviews with both parents (if still living with the child), cognitive assessments and physical measurements of the children, a self-completion questionnaire for cohort members and a survey of their class teachers (in England and Wales).

Earlier MCS surveys have shown that it is feasible for large-scale surveys using a general purpose field force to collect height and weight measures, information on waist circumference and body fat and oral fluid samples from young children. For the age 3 survey, nearly 14,000 children were weighed and measured in the home.

The resulting data-set is one of the largest of its kind in the UK. The oral fluid samples, for example, which have helped researchers to gauge the cohort children's immunity to infections, were gathered from no fewer than 11,698 three-year-olds.

### Outcomes and findings

The immediate outcome of the MCS team's work is a unique data resource for the national and international research community. It is this that forms the basis of all the analyses carried out by CLS researchers and the many external users of MCS data. However, the following findings from MCS-based research are another form of outcome. Several of these findings have proved to be of not only national but international importance.

**Breastfeeding:** A study based on the age 9 months survey data showed

that breastfeeding protects against hospitalisation for diarrhoea and lower respiratory tract infection.<sup>2</sup> It estimated that if all UK infants were exclusively breastfed, the number hospitalised each month with diarrhoea would be halved, while respiratory infections admissions would be cut by a quarter. Another MCS-based study found that breastfeeding was associated with lower prevalence of overweight at 3 and higher cognitive scores at 3 and 5.<sup>3</sup>

**Immunisation:** The age 3 survey, conducted soon after the scare over the combined MMR vaccination, revealed that 6 per cent of children had not been immunised against measles, mumps and rubella. The survey showed that children in less educationally advantaged families were more likely to have received the combined MMR vaccine. More educated parents were more likely to have opted to pay for separate shots.<sup>4</sup>

**Poverty:** Despite government efforts to eradicate child poverty almost three in 10 MCS children were still in poor families at age 7. However, the MCS does more than take cross-sectional snapshots of family poverty. It has added to our understanding of the problem by showing that while some cohort families have been persistently poor, at least as many children have moved in and out of the lowest income group. A key MCS message, therefore, is that poverty touches the lives of many more children than snapshots suggest.

**Cognitive development:** The second MCS survey revealed that many children from disadvantaged backgrounds and from ethnic minority families were, educationally, up to a year behind their most privileged peers by age 3. Analysis of the age 7 data concluded that children's rates of progress are, if anything, increasingly associated with parents' social class. Even after allowing for other factors, the children of professionals and managers were, on average, at least eight months ahead of the most socially disadvantaged pupils at age 7.<sup>5</sup> More positively, the more recent MCS surveys also found that the

achievement levels of different ethnic groups were converging. Minority children had caught up with white youngsters by age 7.

**Overweight/obesity:** Almost one child in four was found to be overweight at age 3. The study has, however, shown that overweight and obesity are not evenly spread among the child population. Girls are more likely than boys to be overweight at age 5 (23% of girls and 19% of boys) and at age 7 (23%:18%). Children with no siblings are also substantially more likely to be overweight. Cross-cohort comparison of children born in the Avon area a decade earlier shows how quickly the tide of obesity has risen. Three per cent of the Avon cohort born in the early 1990s were obese at age 7, compared with 6 per cent of MCS children at the same age.<sup>6</sup>

**Family composition:** MCS is offering important insights into the complex dynamics of 21st century family life. At age 7, just over half of the cohort (55%) were living with married biological parents while slightly over one in five (22%) were living in a lone-mother family.<sup>7</sup> Such statistics have generated a huge amount of public and media discussion, have been the subject of several think tank reports,<sup>8</sup> and have featured in House of Lords debates. However, again the MCS data have offered several perspectives on the relationship between family structure and child outcomes. Research using the MCS has, for example, shown that married, cohabiting and lone parents often have different backgrounds.<sup>9</sup> Advantaged circumstances can help couples to maintain stable marriages, rather than stable marriages necessarily having positive consequences.

## Dissemination

**Transfer of knowledge within the UK:** CLS researchers involved in the Millennium study maintain strong formal and informal networks with government researchers, lobby groups, think tanks and policy-makers. Senior CLS researchers have visited

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several UK government and devolved administration departments, presented at seminars and workshops, and responded to many informal requests for information and advice.

#### International transfer of knowledge:

The former director of MCS, Professor Heather Joshi, acted as a scientific adviser to the French cohort study, to Growing up in Ireland and to the German Ministry of Health. The current director, Professor Lucinda Platt, gave a presentation in Brussels last year on child poverty and ethnicity that was attended by European Commission officials. The MCS's senior survey manager has also shared best practice with academic and operational staff associated with longitudinal surveys in Canada, the USA and Australia.

**Media work:** CLS has also recognised the importance of promoting the study via the national and international media. In 2010, CLS issued no fewer than 18 press releases about the findings of its MCS analyses. This attracted a huge amount of publicity for the study – not only in all four UK countries but around the world. The *Guardian*, for example, referred to the MCS 16 times during the year. The study has also received an exceptional amount of TV, radio and web coverage. Such publicity has not only raised awareness of the MCS among the general public. It has drawn the attention of policy-makers too. Welsh Assembly Government officials told the authors of the 2011 ESRC evaluation of the MCS: “The CLS press office is very good – media coverage definitely helps ministers to understand the importance of MCS.”<sup>10</sup>

### The study's impact

It is recognised that the route from research to policy and practice is rarely linear or quick. This might be expected to be especially true of the MCS as its immediate outcome is a unique data resource for researchers rather than a published research study. Nevertheless, the independent evaluation commissioned by the ESRC confirmed that the MCS has achieved

some significant “instrumental” impacts (i.e. influencing the development of policy, practice, or service provision).<sup>11</sup> It has also had “conceptual” impacts (enhancing understanding or informing debates).

**Influence on senior politicians:** The evaluation team interviewed officials in government departments, the devolved administrations, research institute staff, think tanks and research funders and concluded that MCS has “played an important role in influencing policy-making within central government”. It has also helped to shape key policies of the devolved administrations. The evaluators found that some of the country's most senior politicians, including Nick Clegg, the Deputy Prime Minister, and David Willetts, Minister of State for Universities and Science, are aware of the study, as are ministers in the smaller UK countries. Mr Willetts regards the MCS and the other two CLS cohort studies as “very valuable research tools” and told the Commons select committee on science and technology last summer that the MCS was “helping us assess what works when it comes to early-years interventions”.<sup>12</sup> As the ESRC evaluation reported, the last Labour government improved Sure Start Children's Centres in the most disadvantaged parts of England and funded more outreach workers and training “as a result of research using MCS data”. The coalition government has adopted a different strategy regarding children's centres but, as David Willetts's comments indicate, the MCS is continuing to inform political thinking on this issue. MCS evidence is also known to have had an impact on policy thinking in several other areas:

**Breastfeeding and birth weight:** The MCS research that found breastfeeding to be associated with lower hospitalisation rates for respiratory infections and child diarrhoea has proved to be very influential. It has been widely cited by health organisations, most notably in:

- the National Institute for Health and Clinical Excellence (NICE)

David Willetts, Minister of State for Universities and Science, regards the MCS and the other two CLS cohort studies as “very valuable research tools”.





About two-thirds of seven-year-olds enjoy playing outside but a slightly higher proportion say they like watching TV or DVDs

- guidance on Maternal and Child Nutrition;
- guidance issued by the Department of Health/ Department for Children, Schools and Families, 'Commissioning local breastfeeding support services';
- 'Infant Feeding Survey 2005: A commentary on infant feeding practices in the UK', by the Scientific Advisory Committee on Nutrition.

The finding is highlighted in the nutrition guidelines and breastfeeding strategy documents published by many UK primary care trusts, including North Somerset, Stoke on Trent, Blaenau Gwent, North Lincolnshire, Knowsley and Kent and Medway. It is also cited in documents published by the NCT (formerly the National Childbirth Trust), such as NCT breastfeeding support services - the evidence (2010). This finding has, additionally, had an impact far beyond the UK. It has been used to help underpin the South African government's policy on breastfeeding (see 'SA Breastfeeding Program: Strategic and action plan

2007 – 2012'). It is also referred to in several documents and public statements issued by Unicef UK on behalf of the Baby Friendly Initiative, a worldwide programme of the World Health Organization and Unicef. MCS-based research on birth weight has also received serious consideration by policy-makers as it has highlighted the value of strategies that encourage women from ethnic minorities to attend ante-natal classes.<sup>13</sup>

**Cognitive development:** The finding that many children from disadvantaged backgrounds are already up to a year behind more privileged youngsters educationally by the age of three has featured in many political debates over the past four years. It has also helped to influence policy decisions that have improved the lives, and prospects, of some of the country's poorest children. For example, a key Scottish Government document, 'Spending Review 2007'<sup>14</sup> refers explicitly to the MCS and states (page 21): "The extent of disadvantage that some children experience from birth impacts adversely on their life chances. By the time they reach their third birthday, children from deprived backgrounds can be as much as a year behind their peers in cognitive and



Breastfed MCS babies were less likely to be admitted to hospital for respiratory tract infections

social development ... This government will work with our delivery partners to act swiftly in identifying and dealing with risks to children, young people and families in order to prevent these risks from becoming long-term problems.”

**Child health:** Health agencies are using MCS findings to improve and refine their systems and to generate policy recommendations. For example, MCS data showing that children from deprived areas were more likely to have an incomplete set of immunisations in their first year have influenced the policies of primary care trusts.<sup>15</sup> MCS statistics on the incidence of obesity

in very young children have also done much to strengthen the argument that anti-obesity work needs to begin in babyhood or even during pregnancy.<sup>16</sup>

**Poverty:** Three key reports that have influenced recent government thinking on child poverty have drawn upon MCS data. One is ‘Ethnicity and Child Poverty’ by Professor Lucinda Platt, director of MCS. This report was commissioned by the Department for Work and Pensions.<sup>17</sup> Another is the report of the National Equality Panel.<sup>18</sup> The third is Frank Field’s ‘Final Report from the Independent Review on Poverty and Life Chances’,<sup>19</sup> which uses MCS



evidence to trace the links between poverty and child development. Perhaps the most significant use of MCS data in this policy area was made by a study commissioned by the Field inquiry which considered whether a particular set of life indicators was suitable for measuring life chances.<sup>20</sup> “This was important as it used the MCS data as the foremost way of checking that the policy proposals [from the Field review] were fit for purpose,” the ESRC evaluators concluded. “The use of the MCS by Frank Field has been particularly influential with this review now largely informing current child poverty strategy.”

**Devolved administrations:** The boosting of samples in Scotland, Wales and Northern Ireland has also, as the ESRC evaluation again confirmed, resulted in MCS data being used in a number of policy areas in the devolved nations. For example, reports on the MCS that the Northern Ireland Executive commissioned from CLS researchers have been playing a central role in the development of a new child poverty strategy. The latest of these CLS studies contains important analyses of the relationship between child obesity and poverty, which would not have been possible without the longitudinal MCS data-set. In Scotland, MCS data are being used for research on a range of policy-relevant subjects and are providing a robust basis for comparison with other parts of the UK in order to isolate the “Scottish effect”. In Wales, the ‘Child Poverty Strategy Consultation Paper 2010’ issued by the Assembly Government included an evidence annex based on MCS data. The finding that 22 per cent of Welsh three-year-olds are overweight and just over 5 per cent are obese has also had significant ramifications. In January 2010 the Assembly Government launched a draft ‘All Wales obesity pathway’ document that was issued partly in response to this MCS finding. According to Children in Wales, a national umbrella organisation funded by the Assembly Government, the obesity prevention document was produced “further to evidence showing the proportion

of adults and children who are not maintaining a healthy body weight is increasing”. It then added: “The Millennium Cohort Study survey found that 22 per cent of Welsh children aged three were overweight and just over 5 per cent were obese”. The same statistic is quoted at the beginning of the approved version of the pathway document which health boards in Wales now use as a tool to review local policies and services for children and adults.

**Conceptual impact:** As noted earlier, the ESRC evaluation confirmed that the study has had a conceptual impact too – by enhancing understanding or informing debates. Social mobility is a case in point. There is much-cited evidence that mobility decreased between the 1958 and 1970 cohorts. However, comparisons of data on those born at the Millennium and in the 1980s suggest that there is no decline in mobility across these two more recent cohorts.<sup>21</sup>

**Capacity building:** The MCS has also made a major contribution to the academic literature on survey methodology, particularly on methods of combating non-response and drop-out in longitudinal studies, and the emerging area of administrative data linkage. The introductory workshops on MCS and the other CLS cohort studies held during 2010 attracted research students from 11 UK institutions.

## Concluding reflections

It will, of course, be many years before the MCS’s myriad effects can be fully assessed. It takes time for research to become embedded in policy. Furthermore, fresh findings emerge with each sweep of data and important new analyses of that data are being published almost every week. Nevertheless, MCS-based findings on some fundamentally important aspects of child development have already had an extremely significant impact on policy and practice throughout the UK, and in other parts of the world. Few research programmes have such an extensive reach as this unique study.

MCS data have helped to trace the links between poverty and child development.

## Notes

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