Welcome to the first issue of the ALSPAC Social Research Newsletter. This e-newsletter is designed to keep social science researchers up to date about developments within the Avon Longitudinal Survey of Parents and Children – the database and research using the ALSPAC data. ALSPAC has many unique features which make it an exciting data source. Among these features, two key elements allow extensive service mapping and the study of peer influences. The first being the presence of extensive bio-markers and the second being the geographic concentration of cohort members.

ESRC (Economic and Social Research Council) grant funding was secured by Bristol researchers to study the evolution of socio-economic gradients through childhood using ALSPAC data. We have adopted the title Impact of Family Socio-economic Status on Outcomes in Childhood & Adolescence or IFSOCA. As part of this research funding we aim to raise awareness of the ALSPAC database within the social science community and to encourage and support its usage by researchers. We have formed a social science user group which currently has 450 members across the UK and internationally. In addition, we aim to communicate regularly with data development teams working on related major UK datasets in order to facilitate knowledge exchange, especially the matching of administrative data.

In this first issue we provide an overview of the range of data contained in ALSPAC and we describe how to gain insight into these data. We also document sample response patterns across the cohort as participants have aged and demonstrate how this differs across questionnaire and clinic based data. The newsletter also describes the ESRC funded research and the PEARL study that are underway. In future we will produce a newsletter every six months and describe data and research advances. In particular we would like to hear of social research using ALSPAC from collaborators outside the University of Bristol, which we can then bring to people’s attention.

I hope you feel that this is a useful source of information and will help to keep in contact.

Best wishes

Paul

Please send us details of your ongoing research to:
alspac-socsci@bristol.ac.uk
THE ALSPAC RESOURCE

by Dr Jon Heron (ALSPAC Stats Team Leader) and Dr Paul Snell (ALSPAC Head of Data)

ALSPAC recruited more than 14,000 pregnant women from an eligible pool of ~20000, with estimated dates of delivery between April 1991 and December 1992 who expected to deliver in the geographical area around Bristol & Weston-Super-Mare. These women, the children arising from the index pregnancy and the women's partners have been followed up since then.

Detailed data collection occurred throughout childhood, including:

- **Self Completion Postal Questionnaires (500000+ received)**
  - Carer questionnaires (18); Child based questionnaires (22); Child completed questionnaires (22); Partner questionnaires (16); Puberty questionnaires (8); Schools questionnaires (13)

- **Hands on Assessments**
  - 9 clinics between ages 7 – 17

- **Biological Samples**
  - 1 million samples, including DNA from over 10000 young people

- **Direct School Contact**

- **Linked Datasets**

- **Environmental monitoring**
  - Sub Studies using GIS techniques to look at environmental exposure
Response rates overtime are falling, although ALSPAC concentrates a huge effort in trying to maintain participation.

Research using the ALSPAC data has led to the publication of over 450 peer-reviewed journal publications.

For the full list of ALSPAC research publications by year please visit http://www.bris.ac.uk/alspac/sci-com/pubs/
For a list of ALSPAC research publications of relevance to the social sciences and organised under topic headings, please visit www.bristol.ac.uk/alspac-social-sciences/research/past.html

**Topic headings:**

**Socio-economic Influences on Health Risks and Outcomes**
- Smoking and Alcohol consumption
- Childhood nutrition
- Childhood obesity and influencing factors
- Environmental and Occupational Health

**Speech and Language Development and Disorders**

**Educational Attainment**
- Mental Health and Psychological Well-being
  - Maternal
  - Paternal
  - Child
  - Child Behavioural / Emotional Problems
  - Bedwetting
  - Genetic influences on Mental Health
  - Addiction and Substance Miss-use

**Parenting and Family Relationships**
- Family conflict and breakdown
- Child-Grandparent relationships
- Sibling relationships
- Lesbian mother families
- Employment and Childcare Choices and Outcomes
- Child Maltreatment
- Domestic Violence

**Methodology**

**USING THE ALSPAC RESOURCE**

ALSPAC is currently run as a supported-access resource for the research community. The ALSPAC website (www.bris.ac.uk/alspac) describes the steps that must be taken by those wishing to make use of the resource. It also contains brief details on the sort of data that has been collected; however this information is far from comprehensive. A CD containing more detailed information (including individual frequency tables for data that are currently available) can be obtained by contacting the ALSPAC executive (alspac-exec@bris.ac.uk).

**THE FUTURE FOR ALSPAC DATA ACCESS**

The ALSPAC Executive is committed to making the data resources held by ALSPAC available through more open access. As a publicly funded project, it is right and proper that the use of the data is maximised.

ALSPAC is an exemplar study for the new MRC Data Support Service pilot, and will be working with this group to ensure that researchers will be able to discover exactly what is available (the metadata) using an openly available on-line resource. This project commenced in January 2009, and will last for at least 2 years.

We are also reviewing different ways in which we can make the actual data available directly to researchers, rather than having to obtain our support. This could be implemented in a number of ways, including a Nesstar-type service akin to that provided by the ESDS in the UK Data Archive, or the Virtual Microlaboratory system used by the ONS (or indeed, something else entirely). We are actively investigating the governance and
technical issues associated with these types of access and are committed to providing a service before the end of our next strategic award (2011-2016).

We have also lodged some example datasets with the UK Data Archive, and these are freely available to any bona fide researcher/teacher. These datasets provide tasters to the wider social science community, and we hope they will encourage social scientists to seek to engage more with the ALSPAC resource.

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**IMPACT OF FAMILY SOCIO-ECONOMIC STATUS ON OUTCOMES IN CHILDHOOD & ADOLESCENCE**

www.bristol.ac.uk/ifssoca

This ESRC funded project started in 2007 and runs for 5 years. The objective is to understand the importance of family socio-economic status/position for adolescents in today's Britain. The primary focus is the behaviours and outcomes of individuals in late childhood and adolescence, including physical and mental health, risky behaviours, school performance and the acquisition of soft cognitive skills.

The research team consists of psychiatrists, psychologists, economists, statisticians, educationalists and epidemiologists. Over 50 researchers are involved, most are based at the University of Bristol. Researchers at the Institute of Education take the lead on two projects and leading experts from 14 other institutions both inside and outside the UK take key roles in one or more sub-projects.

There are 27 related sub-projects organised into 6 interlinked Strands:

**High Risk behaviours in adolescence** led by Professor Glyn Lewis, University of Bristol

I am a psychiatric epidemiologist with an interest particularly in the adverse psychological effects of using alcohol and cannabis. There are many people in the strand with a variety of interests. Roberto Melotti is carrying out the main analyses. The main focus of this strand is on socioeconomic influences in a range of high risk behaviours, including alcohol and cannabis use, risky sexual behaviour and self harm. We are also interested in whether the schools and neighbourhoods in which the young people study and live can affect these behaviours. Finally, we want to investigate whether we can begin to understand what might explain any socioeconomic gradients. For example, do poor mental health or measures of impulsiveness account for socioeconomic differences in high risk behaviours?
**Antecedents of cognitive outcomes in adolescence** led by Professor Anna Vignoles, Institute of Education

I lead the education strand of the ESRC ALSPAC project, together with Claire Crawford (right), and we are looking at the determinants of children’s educational achievement. Working with the ALSPAC data is a real pleasure as it is amazingly rich, with a wealth of data on the child’s family, his or her health and, of course, schooling. Although we are focused on important policy questions, such as how we can improve the educational achievement of more deprived children, we are also interested in methodological issues. We are currently working closely with Fiona Steele and Paul Clarke from the methodology strand on issues relating to different models of educational achievement.

**The Antecedents of Physical Health in Adolescents** led by Professor Debbie Lawlor, University of Bristol

I come from a medical, epidemiological and statistical background and my research interests are in the lifecourse and genetic epidemiology of obesity, cardiovascular disease, insulin resistance and diabetes, and women’s reproductive health. I am interested in developing methods for improving the extent to which causal inference can be made from observational data.

The aim of this strand is to determine the magnitude of socio-economic inequalities in health in childhood and adolescent and the age at which important inequalities emerge. The main focus is on obesity, metabolic, cardiovascular and respiratory health, but other aspects of physical health, including, for example bone health will also be explored.

The strand works closely with the methodology strand in order to use best methods for multilevel modelling, dealing with missing data and where appropriate use of instrumental variables analysis, with the risky behaviours, cognition and mental health strand so that ultimately this strand contributes to the overall aim of developing a complete picture of socio-economic inequalities in childhood and adolescent health.

**Dr Laura Howe**, University of Bristol

I joined the project as a post-doc in 2008. My research interests are in health inequalities, life course epidemiology and improving the use of observational data for making causal inference.

In this project we are exploring the **emergence and patterns of health inequalities across childhood**. One of the key pieces of work we are undertaking is to model trajectories of growth across childhood. Children from lower socioeconomic backgrounds are born shorter and lighter than more socioeconomically advantaged children. Children from lower socioeconomic backgrounds tend to remain shorter across their life course, but are more likely to become obese in later life. The patterns of socioeconomic inequalities in both height and obesity across childhood are not clear, and we are exploiting the longitudinal data in ALSPAC to explore this. We have modelled trajectories of height, weight, and body mass index across childhood and are exploring how the inequalities change across childhood. We are also looking at how this relates to later cardiovascular risk factors, and assessing how the patterns of inequalities in childhood obesity might relate to inequalities in diabetes and coronary heart disease when these children reach adulthood. The trajectories of height, weight and BMI that we have created through this work can now also be used to explore the associations of childhood growth with other exposures and outcomes.
Friendships, Peer Groups and Neighbourhoods led by Professor Simon Burgess, University of Bristol

I am an economist. I have recently been doing a lot of research on young people in schools, and outcomes such as GCSE grades. Before that I studied unemployment, poverty and incentives. This is a new research area for me, though obviously linked to young people and schools. The aim of this strand is to understand friendship networks. We all know about social networking and the importance this has achieved in our lives. But there is a need for more research evidence on friendships. The Children of the 90s study seemed a great setting for this, and last summer we sent out a questionnaire on the nature of friendship links among the young people in Bristol. This data is being processed and we will shortly be able to begin the planned research projects.

Methodology led by Professor Fiona Steele & Professor Frank Windmeijer, University of Bristol

We together lead the Methods strand of the project. Frank is an econometrician who specialises in the analysis of panel data, with recent applications in the health field. Fiona is a social statistician with expertise in multilevel modelling of longitudinal data, with applications in demography. Statisticians Paul Clarke and Michael Spratt also work on the Methods strand. They work jointly with Frank and Fiona, and together on a project investigating the impact of non-response on ALSPAC.

Our work on IFSSOCA includes methods for using genetic information in analyses of health data, statistical models for school effects on pupil attainment where there is competition between schools, and methods for handling missing data in complex longitudinal studies. We also collaborate with researchers on other strands, for example with Professor Debbie Lawlor's team on differences in child growth by socio-economic position and with Anna Vignoles’ strand on a review of methods for evaluating the impact of schools and parental characteristics on pupil attainment.

International comparisons of child development led by Professor Paul Gregg, University of Bristol

I am the PI on the IFSOCA large grant and manage the broader issues of the grant. In addition I lead a strand on cross-cohort comparisons. The aim is to use ALSPAC as a tool to study socio-economic inequalities over a range of dimensions across time or across countries. To this end Liz Washbrook has visited the Public Health group at Columbia to develop research links with similar US data such as ECLS K and ECLS B databases and a group will soon be visiting Denmark to develop similar links. In the UK arena myself and Lindsey Macmillan have compared gradients of educational inequality by family income across the UK birth cohorts available to date. We are also exploring how young people have made the school to work transition in past cohorts and now in the ALPSAC database.
ALSPAC provides the most detailed phenotypic, genotypic and environmental assessments of parents and their children across the life course of any comparable study available to scientists studying early life influences on health. To further strengthen the platform ALSPAC is undertaking linkage to electronically held routine health and social information. Some of this work is in place and functioning, others are being developed.

Linkage data will augment information collected through direct means, providing:

- a cost effective and comprehensive source of both retrospective and prospective measures of exposures and outcome status
- validation of directly collected data and crossvalidation of data from different linkages, each potentially influenced by different biases
- a means to obtain data whose measurement is less subject to self-report or participant bias
- allow the biases of incomplete participation to be assessed and to inform strategies for dealing with missing observations.

**PEARL Target Data Sources**

- **NHS** Patient level primary care & hospital admissions data
- **Home Office** Criminal records
- **DWP** Benefits & Employer data
- **HMRC** Income Data
- **GIS** Proximity to services data

**PEARL Aims**

- Obtain consent for and establish mechanisms of linkage between ALSPAC study participants and routine sources of data on educational, social and health outcomes, including that held in primary care electronic patient records.
- Demonstrate the value of such linkage through a series of exemplar projects around life course influences on key health and social outcomes in young adulthood.
- Establish generic solutions to the problem of complete and cost-effective follow-up of population-based cohorts and initiate a training programme to share these methods and insights with other researchers.
Consent, Confidentiality & Data Security

The ALSPAC study members, GP practitioners and data owners may all have concerns, primarily about confidentiality, about the use of linkage data in epidemiological research. PEARL aims to explore these concerns; through cohort feedback, qualitative investigation and working with specialists in order to develop robust and secure systems that will support epidemiological research while maintaining the trust and confidence of the study participants.

Working with ethics boards and the data owners PEARL will attempt to trace and contact the whole ALSPAC study cohort, including those lost to follow up or no longer resident in the study area. In order to collect data on a representative population we will seek Section 251 support to link those for whom we can’t get a response (that is people who have neither withdrawn from the study or explicitly declined consent).

ALSPAC Linkage to Education Data (Kerry Humphries, ALSPAC)

ALSPAC will continue to link to the education data post-16. We are in the process of working with the National Pupil Database and The Data Service to obtain these data, however there is an embargo on the Individual Learner Records data at the moment which contains post-16 achievements. However, ALSPAC has just been granted access to the NISVQ (National Information System for Vocational Qualifications) and PLAMS (Post-16 Learning Aims) data.