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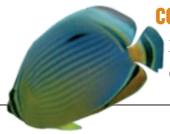

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The generation game

Birth-cohort studies offer invaluable data on the links between childhood development and later life, but today's efforts could learn something from a pioneering project that turns 65 this week.

Now and then, Britain creates something it can really be proud of. The Beatles, fish and chips, cream teas and pubs tend to rank high in polls, as can the Royal Family, particularly with wedding bells in the air. But ask epidemiologists, and they will probably praise a lesser-known British achievement: birth-cohort studies, the observation of groups of people from birth onwards.

This week, members of the oldest British birth cohort, all born in one week in March 1946, will celebrate their 65th birthdays (see page 20). They are part of the longest-running human experiment of its type, an endeavour that — along with later generations, including cohorts born in 1958, 1970 and at the turn of the millennium — is the envy of researchers around the world. The cohorts offer important lessons for scientists who want to launch similar efforts today, as well as for politicians who question the merits of funding such work. The 1946 cohort shows, in stunning detail, how long-term studies can pay off. It has provided a treasure-trove of data linking early socioeconomic status, health and development to later events, such as disease, educational attainment and well-being. And it is already starting to show how genetics and a lifetime of experiences influence the ageing process. Sometimes, the only way to understand human life is to study it. This week, the United Kingdom announced that it will spend some £33.5 million (US$54.5 million) over five years on cohort research, including a new study of about 90,000 children.

Not all cohort studies receive universal praise. The National Children's Study in the United States, which is recruiting participants and aims to track around 100,000 children from birth to age 21, has been more than a decade in the planning, cost US$194 million in 2010, and to its critics is a vast and overambitious data-gathering exercise without clear goals. Plans for a British birth cohort in the 1980s were vetoed by the Conservative government.

It is not just about money — the 1946 cohort, after all, has survived on a hand-to-mouth basis for most of its existence. The study was triggered by concerns about falling fertility rates in post-war Britain. Its gung-ho leader, James Douglas, was able to contact and question some 13,000 mothers who gave birth soon after the end of the Second World War — and to publish influential results within two years that prompted legislation leading to improved access to pain-relief during childbirth. Such rapid data collection and response would be impossible today, given the (often necessary) legal, ethical and bureaucratic framework erected around research in the intervening decades. Participants are now harder to recruit, and more likely to move away or drop out. And as science has developed, so the hypotheses and factors examined in modern cohort studies have proliferated. Gadgets measure every pollutant breathed, calorie consumed or step walked in pregnancy, and are accompanied by intelligence tests, studies of behaviour and parenting style, and countless clinical tests and biomolecular studies. The US National Children's Study has suffered from spiralling complexity and cost, partly attributable to investigators wanting to measure every possible variable.

One way to avoid this kind of scientific paralysis is to follow new cohorts every ten years or so. Questions not asked of one group can then be held over for the next. The need to initiate cohort studies is particularly pressing at the moment, with the deep budget cuts taking place in the United Kingdom and elsewhere threatening to increase financial, health and educational inequalities. How, except by following those born during and immediately after the financial storm, can society learn about the long-term social impacts of these changes over a lifetime? Such questions are particularly urgent in the United States, and much will be learned from the National Children's Study, but it ought to articulate a clear, science-based vision and prove that it can provide value for money. Does the study need the dozens of data-collection centres that it has scattered across the country, or can it be streamlined? Such questions must be carefully considered by politicians and scientists vying for a piece of the action.

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In return, those who run cohorts must share their rich data with suitable collaborators — while adhering to appropriate confidentiality standards — and ensure that results are disseminated widely, particularly to policy-makers. Lifestyles and science are both more complex in 2011, but studies of today's children are just as valuable as studies of those born in 1946. Happy birthday to the Douglas babies — and here's to the next generation. ■

Invest to diversify

Despite many federal initiatives, the number of US scientists from minority groups remains low.

Minorities and other marginalized groups have not always enjoyed the best relationship with science. In the 1930s, researchers from the US government started a series of experiments that recruited hundreds of African American men infected with syphilis, then left their disease untreated to study its natural progression. (The government did, however, provide free burial insurance.) More recently, American Indians from the Havasupai tribe sued Arizona State University in Tempe over claims that geneticists had collected and analysed blood samples from tribe members without obtaining proper consent. The two parties settled that suit last year. Indigenous peoples in other countries such as Australia also have historical reasons to be suspicious of mainstream scientists.