

# Why do we need large population studies?

January 27 2017

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Per Magnus, director of the Norwegian Mother and Child Cohort Study (MoBa) at the NIPH, together with two researchers from the UK and Denmark, have written a commentary article in the latest issue of the prestigious journal *JAMA Pediatrics*. The journal is published by the American Medical Association.

The article is about the importance of large birth cohorts, such as MoBa.

Both the US and Britain have tried to launch similar birth cohorts, but have not succeeded. There are several reasons for this, both economical and practical.

## **Expensive and difficult**

It is simply too difficult to collect data about the mother, father and children in these countries and it is very expensive. When the US survey - the National Children's Study - was shelved, it had already cost 1.3 billion US dollars and had been planned and tested on a small scale for over 15 years.

Denmark (the Danish National Birth Cohort, BSIG) and Norway (MoBa) have managed it, partly because we have a unified public healthcare system. In addition, we have very good health registries.

When neither the US nor the UK manage to get large birth cohorts up and standing, researchers wonder what we are missing out on, and how important these studies really are. It is now almost 20 years since BSIG and MoBa started.

The authors argue in their JAMA article that many of the important diseases that affect children would have been impossible to research without epidemiological data (biological data and questionnaire data) from these studies. These data include birth defects, childhood cancers, type 1 diabetes and autism in children.

## **Increased knowledge about disease**

Thanks to these studies, we now know more about the significance that

infections in mother and child have for development in utero and after birth. We also understand better the role that pollutants and diet play for child development, and the role genes play in the development of disease.

MOBA is a so-called prospective health study. This means we gather data from the mother, father and child when they are healthy. If illness should occur in the future, scientists can go back to the data and look for causal factors. This requires large surveys of more than 100,000 people. In MoBa, 114,500 children, 95,000 mothers and 75,000 fathers participate.

BSIG and MoBa have so far published more than 800 research papers. According to the authors, the most important discoveries relate to understandings about how chronic diseases in the mother during pregnancy affects the baby, and how the mother's intake of folic acid before and during pregnancy can prevent autism.

When it comes to research on cancer and type 1 diabetes in children, even MoBa and BSIG are too small. These studies have therefore collaborated with several other cohorts, including large cohorts from Asia, to obtain a better basis for research. One important collaboration is called The International Childhood Cancer Cohort Consortium (I4C).

## **Genetic causes**

The authors argue that we now need large population studies more than ever before. They point to the importance that these studies have for finding [genetic causes](#) of disease and for investigating exposure to infectious diseases.

The authors conclude that although the United States and Britain have failed in setting up large birth cohorts, these countries can still play an

important role in facilitating global collaboration between cohorts, such as the pediatric cancer initiative I4C. Countries can also be important sources for funding, such as through the National Institutes of Health (NIH) in the United States.

Provided by Norwegian Institute of Public Health

Citation: Why do we need large population studies? (2017, January 27) retrieved 26 April 2024 from <https://medicalxpress.com/news/2017-01-large-population.html>

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