



# Norwegian **Mother and Child** Cohort Study

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# The MoBa cohort



Aim: To find causes of disease and factors involved in health related issues during a lifespan

- A large population based pregnancy cohort
  - >100 000 families
- A family cohort (mother + father + child)
- Long term follow-up

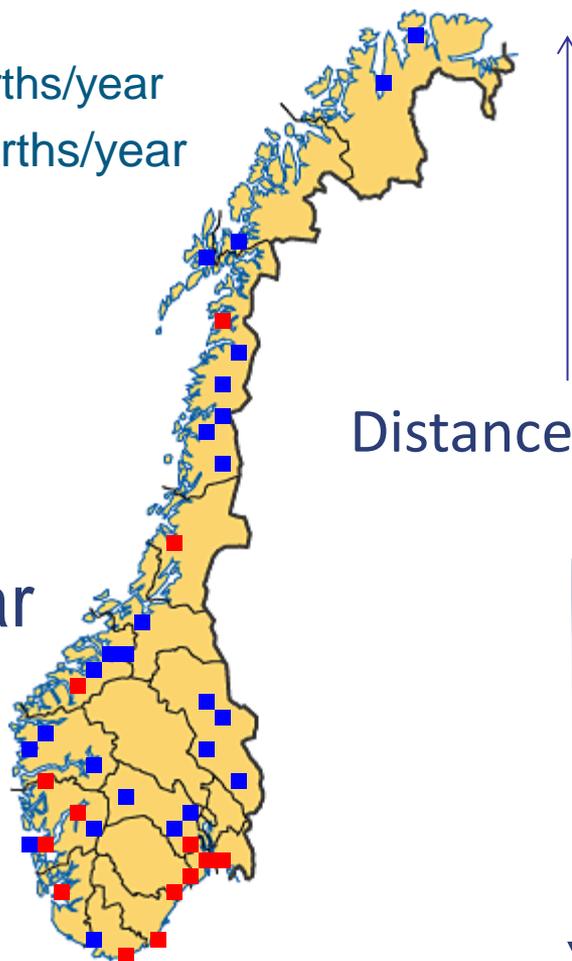


## Pregnant women recruited in pregnancy-week 17 from 50 hospitals

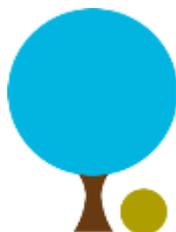
- Hospitals with < 1000 births/year
- Hospitals with >1000 births/year

Inclusion period  
1999 - 2008

Norway  
~60,000 births/year



Distance 2634 km



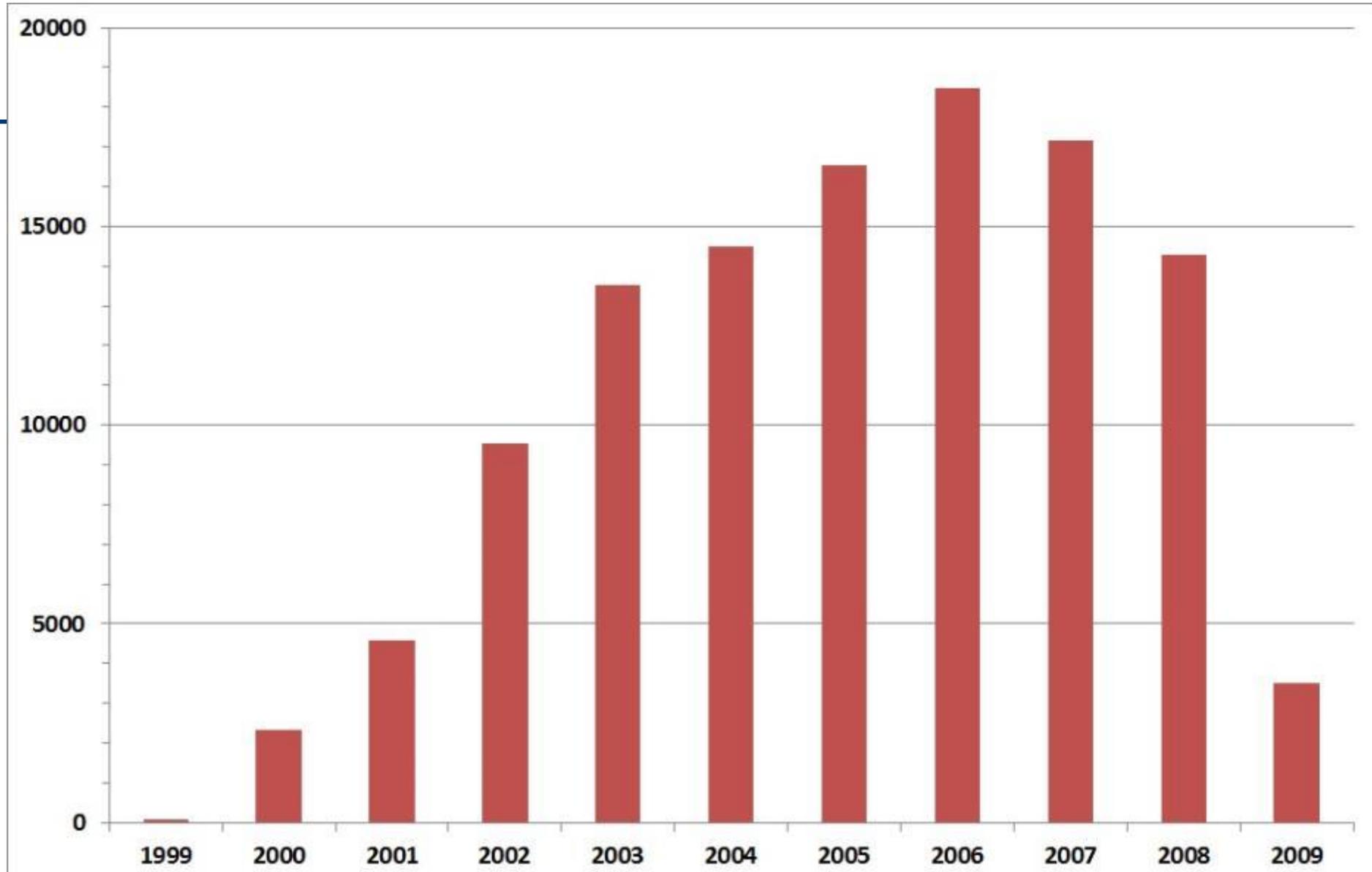
# The MoBa cohort

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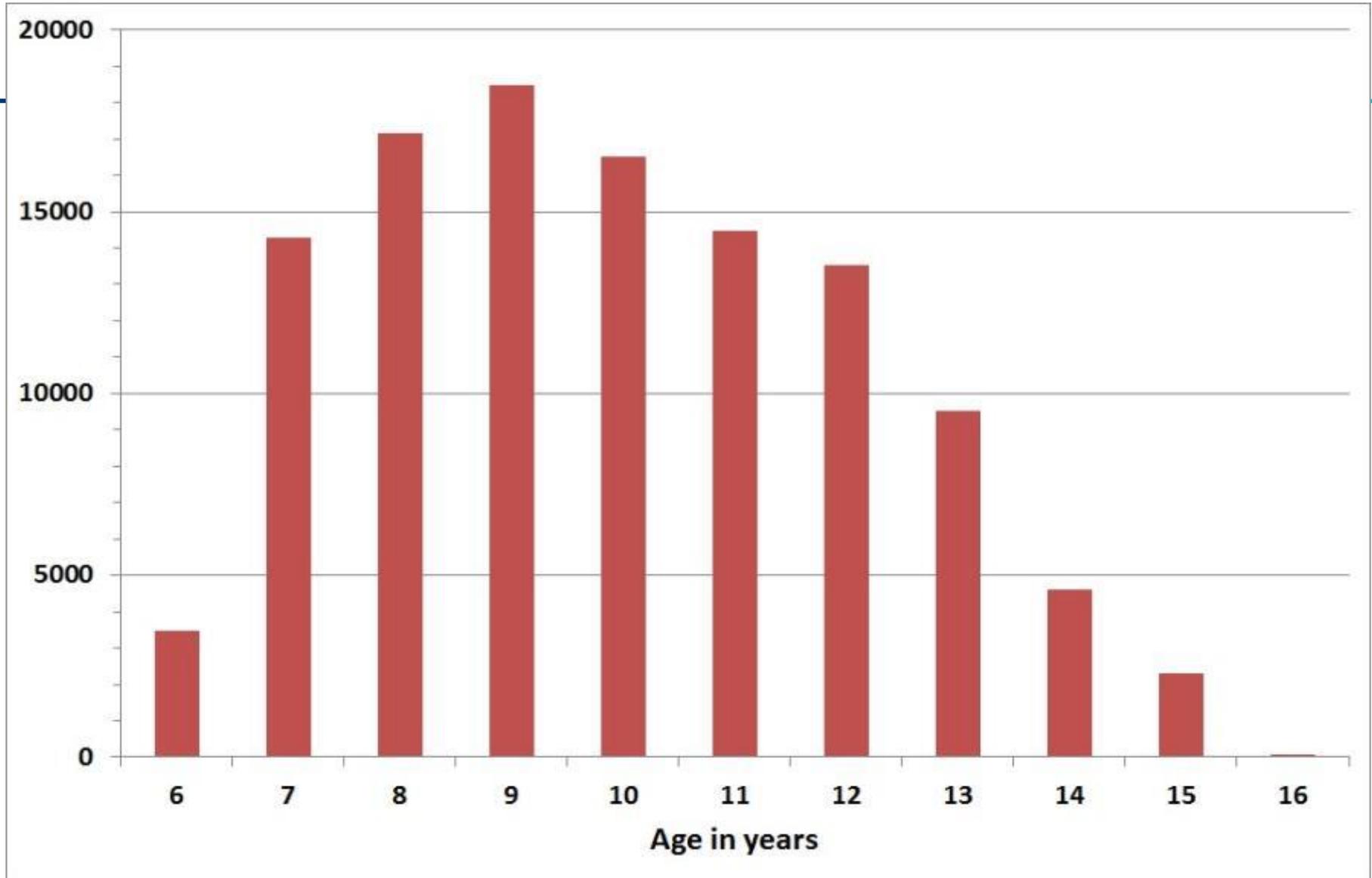
Mothers	95 000	Pregnancies	113 000
Fathers	75 500	Sibships	18 000
Children	114 900	Sets of twins	1900

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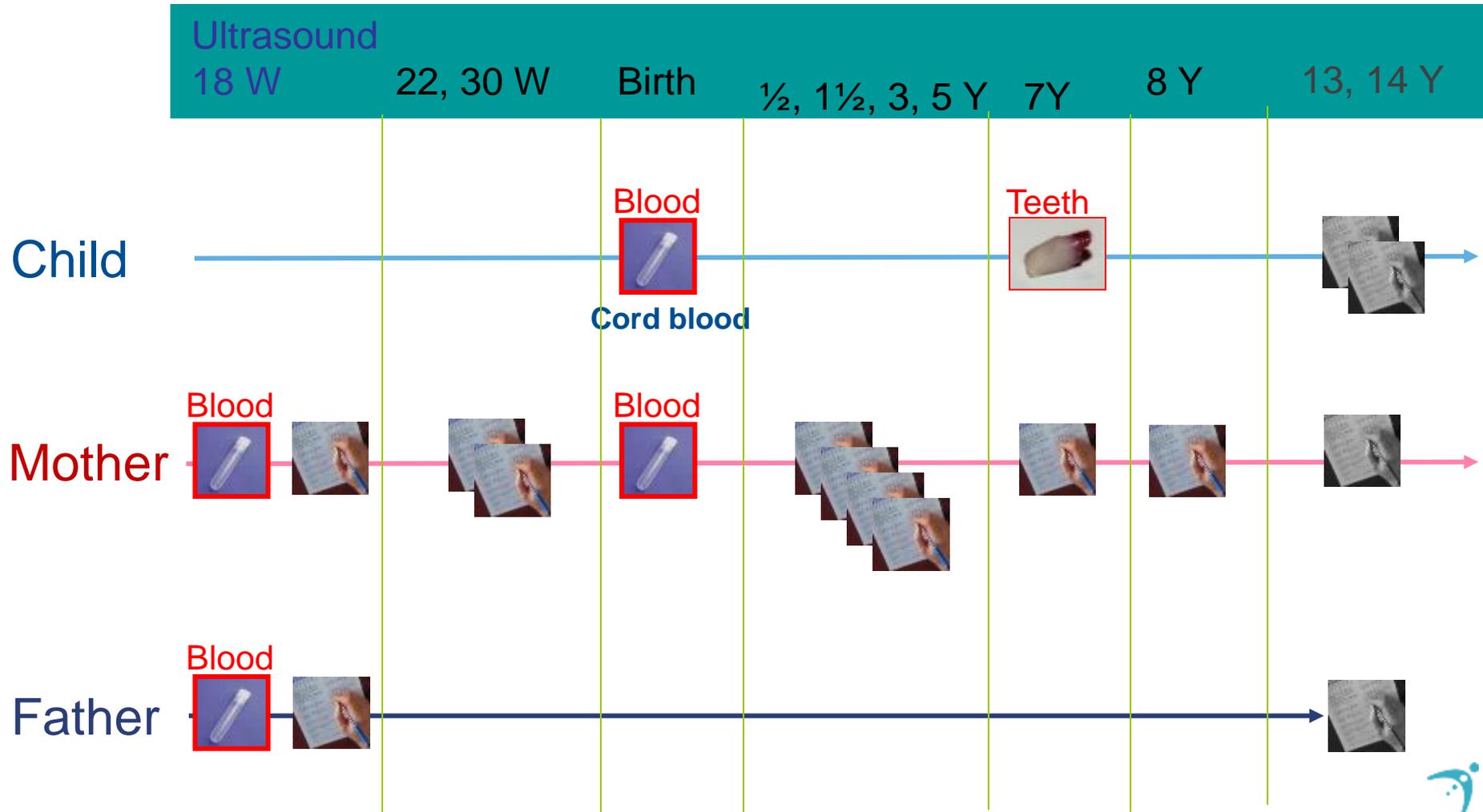
# Year of birth



# Child's age Dec 31, 2015



# Data collection



# THE NIPH BIOBANK



All samples were sent from the hospitals at ambient temperatures by regular mail

## MoBa Biospecimens available:

- EDTA whole blood and plasma (frozen -80°C)
  - DNA extracted from whole blood (frozen -20°C)
  - Urine (frozen -80°C)
  - RNA: from cord blood (Tempus-tubes; RNase free, - 80° C)
- All samples stored with barcodes in freezers or automation storage systems
- **370 000 sample sets**    **4.5 million** aliquots stored

# Additional data

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- Ultrasound measurements
- Linkages to national registries
- GIS
  
- Methylation data (80 cancer cases and 160 controls)
- Whole-genome SNP genotyping of DNA
  - 11 000 trios in MoBa (10 %)
    - 33 000 samples – mother-father-child trios

# Ultrasound measurements

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- Ultrasound from around pregnancy week 17
- Available for 91 739 pregnancies
- Includes:
  - Biparietal diameter
  - Middle Abdominal Diameter
  - Femur-length
  - Anomalies

# Linkage to other registries

## National registries and databases:

### Project specific linkages

Cancer Registry of Norway (CRN)

Norwegian Prescription Database (NorPD)

Norwegian Patient Registry (NPR)

Statistics Norway (SSB)

Norwegian Immunisation Registry (SYSVAK)

The Cerebral Palsy Register of Norway (CPRN)

National Population Register

### Established linkage

Medical Birth Registry of Norway (MBRN)

Linkage by **National ID number** given to all residents in Norway and used in all registers/databases

# MoBa – I4C cohort

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- Cancer registry provides information:
  - MoBa: 127 cases until end of 2010
- December 2015 - new linkage to cancer registry with cases until end of 2014
- Controls: Randomly selected 10 % of total MoBa cohort

# GIS data

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- Current and historical addresses are in the National Population Register
  - Geocodes are available
  - MoBa – Two largest cities are linked (Oslo/Bergen)
- Challenge: Geocodes make data identifiable
  - Requires special procedures in linkage
  - Approval process takes time and linkages are expensive

# Future data collection

<b>School 8y</b>	Sent to 2007-cohort November 2015. <b>Child's teacher</b> is asked to fill in. Will be sent to children born 2007-2009.
<b>Father</b>	Main focus <b>physical and mental health</b> , relationship to child and mother of the child. Will be sent by the end of 2015 to whole cohort.
<b>Q 13 years</b>	First questionnaire to the youths and first that will be only online. Planned 2016. Main focus on <b>mental health</b> .
<b>Q 14 years</b>	Questionnaire to the youths on <b>diet and nutrition</b> . Planned 2016.

# Cohort web site

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[www.fhi.no/moba-en](http://www.fhi.no/moba-en)

Questions about data access: [datatilgang@fhi.no](mailto:datatilgang@fhi.no)



**THANK YOU!**