

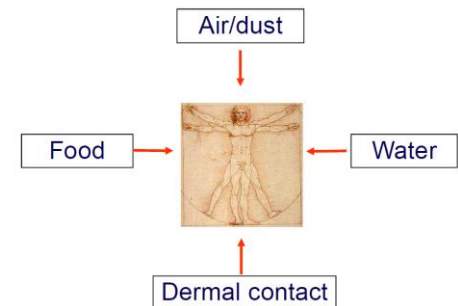
The Norwegian Human Environmental Biobank - MoBaEtox

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Norwegian Institute of Public Health
Global Biobank Week, September 2017

The Norwegian Human Environmental biobank - MoBaEtox

- Established by the Norwegian Institute of Public Health
- Will be used to monitor exposure to
 - Diet components
 - Environmental contaminants



MoBaEtox - possibilities

- Assess known contaminants
- Assess , till now, unknown contaminants
- Follow changes over time
- Identify possible geographical differences
- Identify population groups at higher risk
- Assess exposure pathways
- ++

MoBaEtox

- Part I

Retrieval and analysis of existing biobank-material from 3000 pregnant women in the Norwegian Mother and Child Cohort Study

- Part II

New collection where the same 3000 women was invited to participate together with their child and their child's father.

The Norwegian Mother and Child Cohort Study (MoBa)



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

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



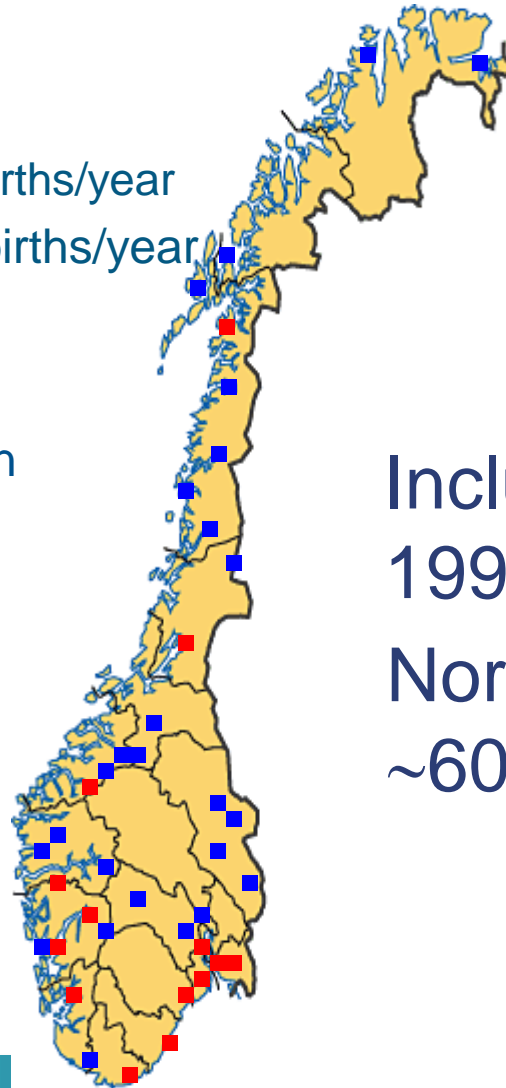
Collaboration with 50 hospitals



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

Recruiting pregnant women
and their partners
midpregnancy

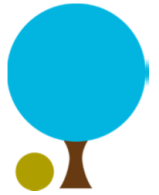
Participation rate: 41%



Inclusion period
1999 - 2008

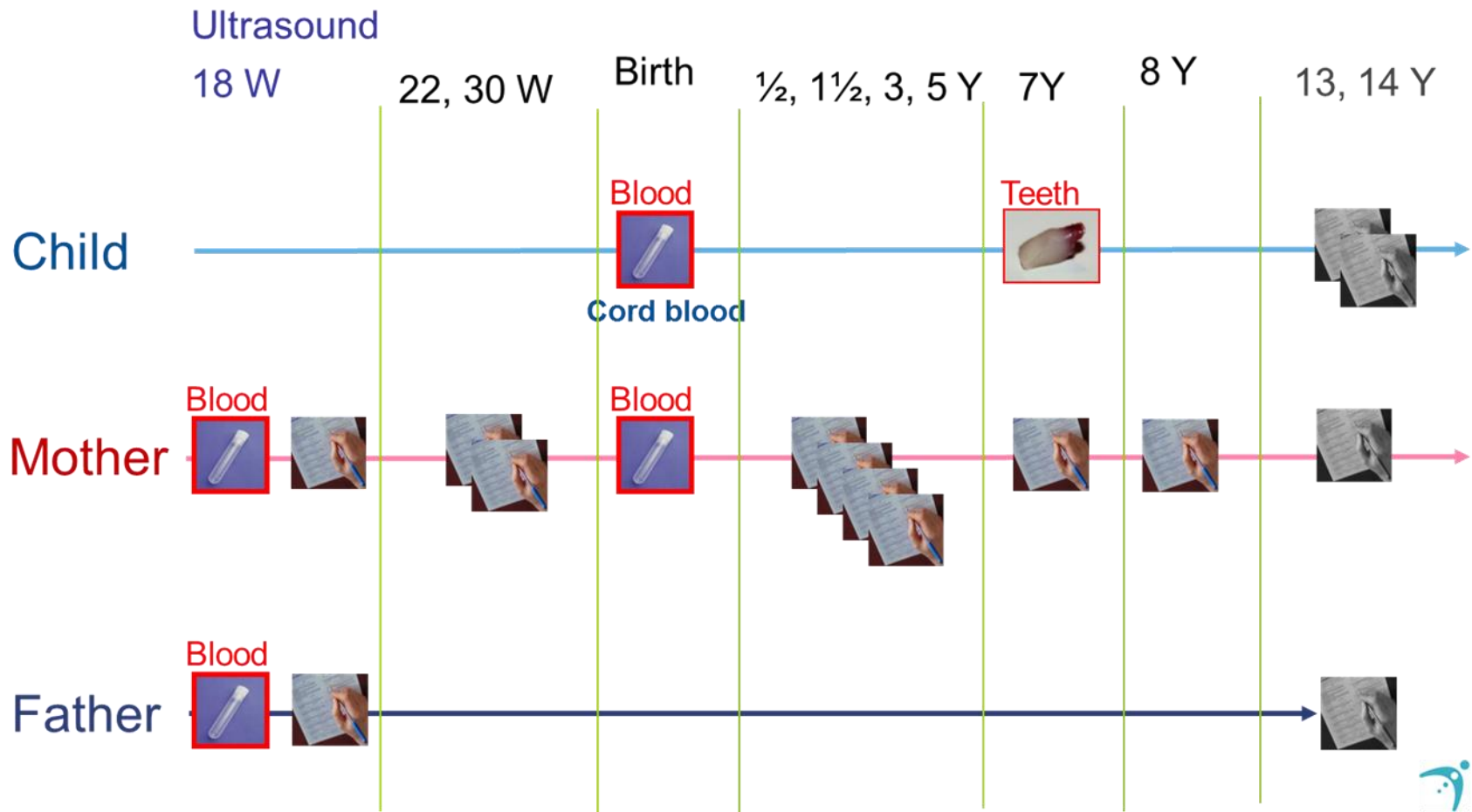
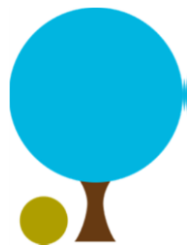
Norway
~60.000 births/year

The MoBa cohort



	#		#
Mothers	95 000	Pregnancies	113 000
Fathers	75 500	Twins	1950
Children	114 500	Triplets	21

MoBa data collection

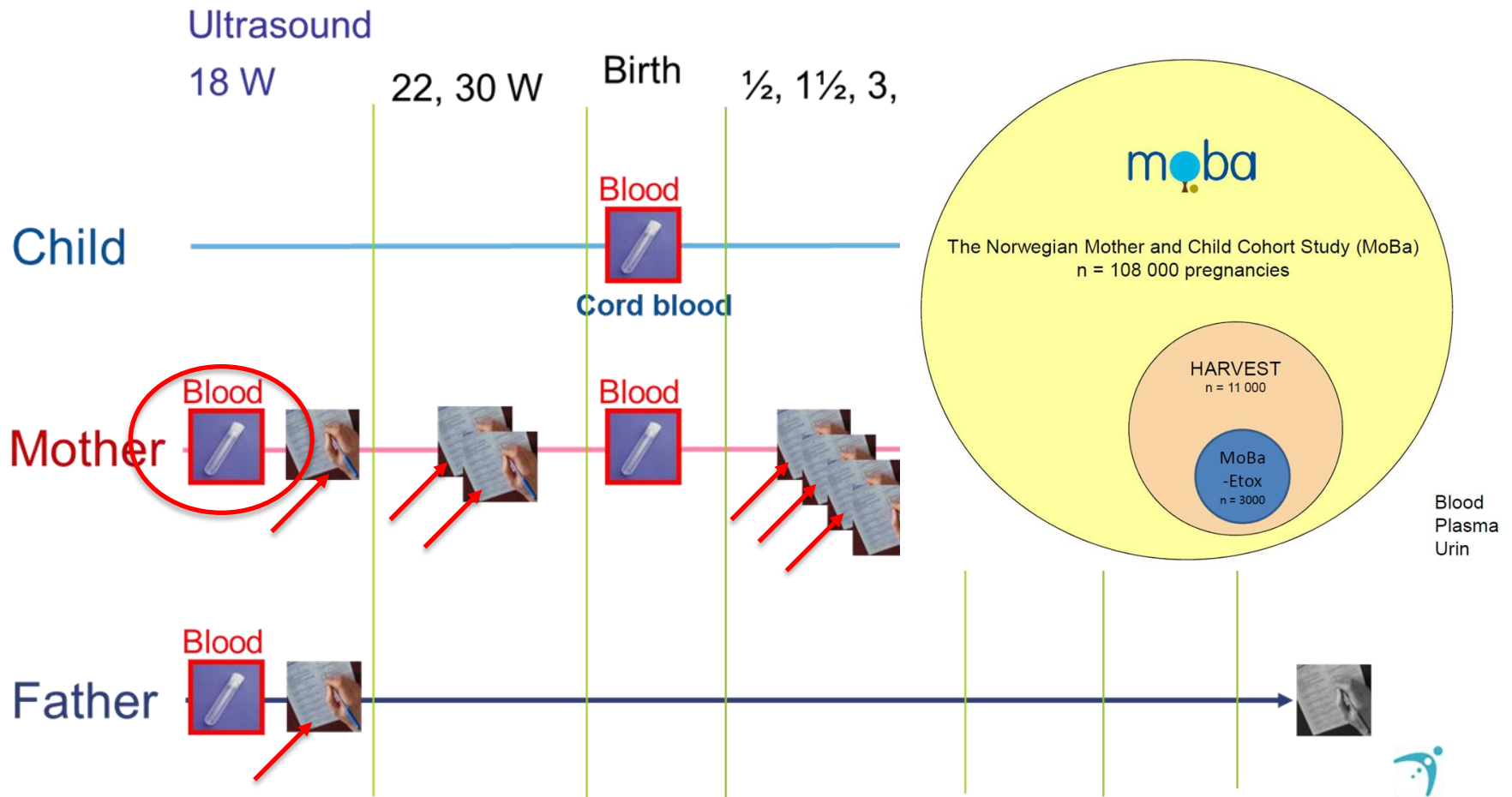


MoBaEtox – part I

AIM

- Obtain knowledge about nutritional and heavy metal status during pregnancy
- Investigate the importance of this status for mother and child health later in life
- Focus on whether nutritional status can protect against negative effects of harmful metals

Inclusion



Volumes and substances

- 930 μL urine
- 1100 μL blood
- 400 μL plasma

Metals (b)

Mercury
Cadmium
Lead
Manganese
Zink
Arsenic
Thallium
Cobalt
Cobber
Molybdenum
Selenium

Jod, Na, K (u)

Blood sugar (b)

HbA1c

Inflammation (p)

CRP

Hormons (p)

TSH
fT3, fT4
TPOAb

Iron status (p)

Ferritin
Transferrin

Vitamins (p)

Vit A (retinol)
Carotenoids
25OHVitD
Vit E
(Tokopheroler)

Stress marker (u)

Cortisol

Corection factors

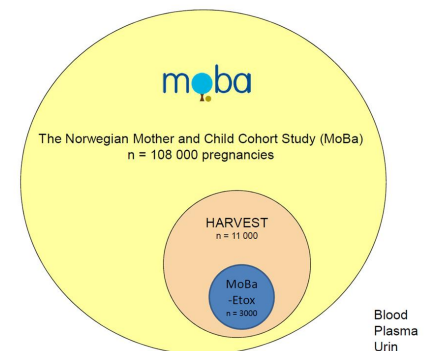
Cholesterol (p)
Creatinine (u)
Albumin (u)
Uric acid (u)

Status part I

- Biobank retrieval: ✓
- Biomarker analysis: ✓
- Data analysis: In progress

MoBaEtox part II

- Participants in part I invited to participate in part II – together with father and child
- Informed consent
- Recruitment and sample collection: 2016
- Questionnaire – diet and lifestyle (adults)
- Biological material
 - Shortly after collection: Biomarker analysis (diet and environmental contaminants)
 - Long term storage: Future studies, study trends in exposure



MoBaEtox part II

- Biological samples were collected at the participants local health center
- Processed at the biobank, NIPH
- Participation
 - 668 children
 - 658 mothers
 - 500 fathers

Biological material stored

Material stored	Mother, father	Child
Whole blood (EDTA)	9 mL	4 mL
Plasma (EDTA)	4.5 mL	1.8 mL
Serum	4.5 mL	1.8 mL
Urine	18 mL	18 mL
Whole blood for RNA (in Tempus tubes)	3 ml	3 ml



Status part II

- Recruitment: ✓
- Storage of biomaterial: ✓
- Biomarker analysis: Not started.

Thank you!

- Helle M. Meltzer (PI)
- Line Småstuen Haug
- Cathrine Thomsen
- Nina Stensrud
- Anne Kari Tveter
- The Biobank Team

