

Norwegian registry data on to OMOP CDM - mapping challenges and opportunities for pregnancy studies

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INTRODUCTION:

In October 2021, University of Oslo was granted funds from the EHDEN - Data Partner Call to map five main Norwegian health registries onto the OMOP CDM (Figure 1).

Our aim is to enable collaboration with other data providers using this CDM, especially for perinatal pharmaco-epidemiological studies.

METHODS

The following Norwegian registries data (2018-2020) were mapped to the OMOP CDM v5.3.1:

- Medical Birth Registry of Norway (MBRN)
- Norwegian Prescription Database (NorPD)
- Norwegian Patient Registry (NPR)
- Norwegian Surveillance System for Communicable Diseases (MSIS)
- Norwegian Immunisation Registry (SYSVAK)

Overview of our mapping procedure is presented in Figure 2.

We enrich pregnancy data in OMOP format OHDSI tools were effectively utilized No standard concepts for important pregnancy related variables Pregnancy extension table for future version of the OMOP CDM?

Figure 1: Five Norwegian registries mapped onto OMOP at the University of Oslo, Norway

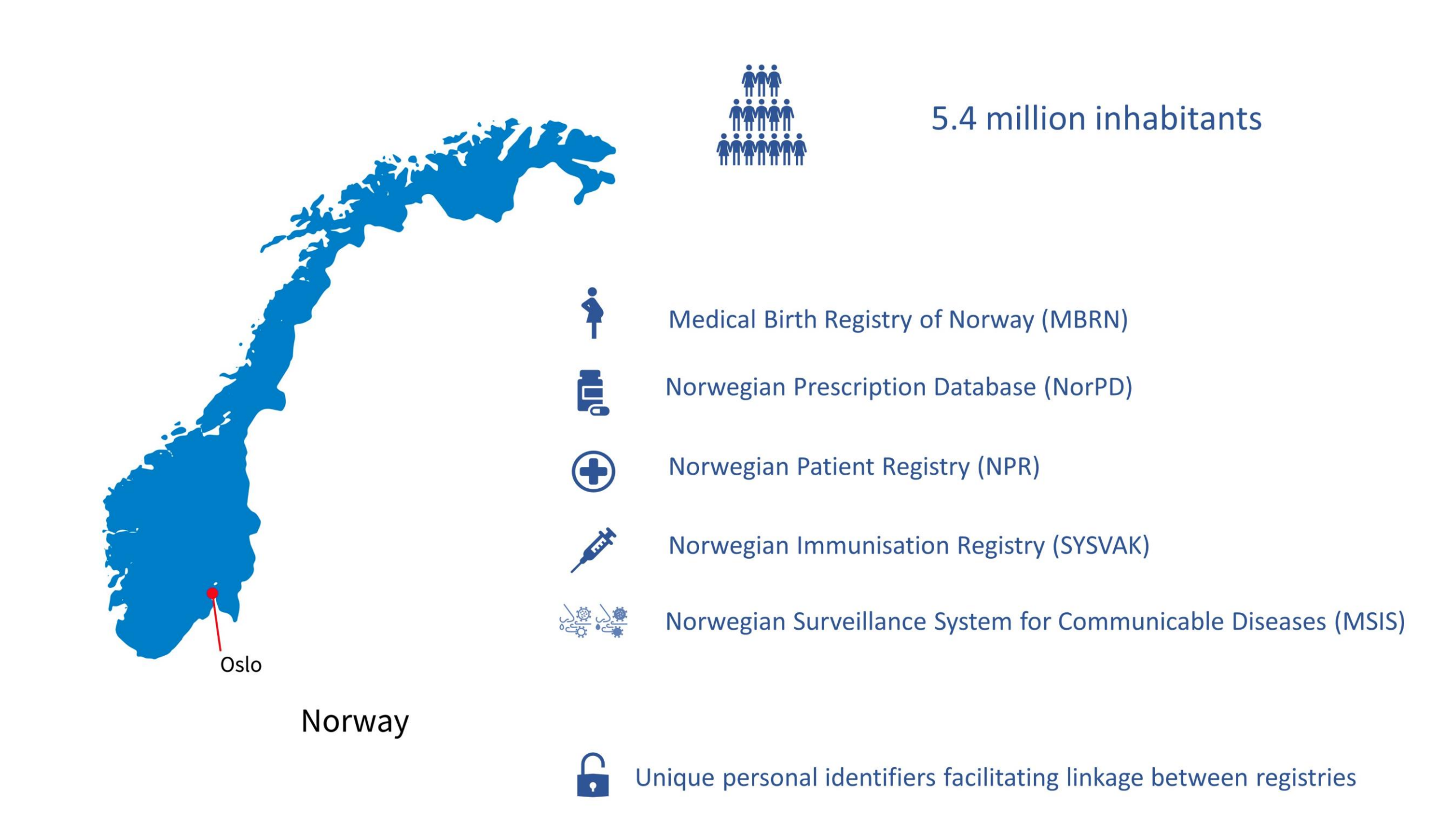


Figure 2: Overview of mapping procedure

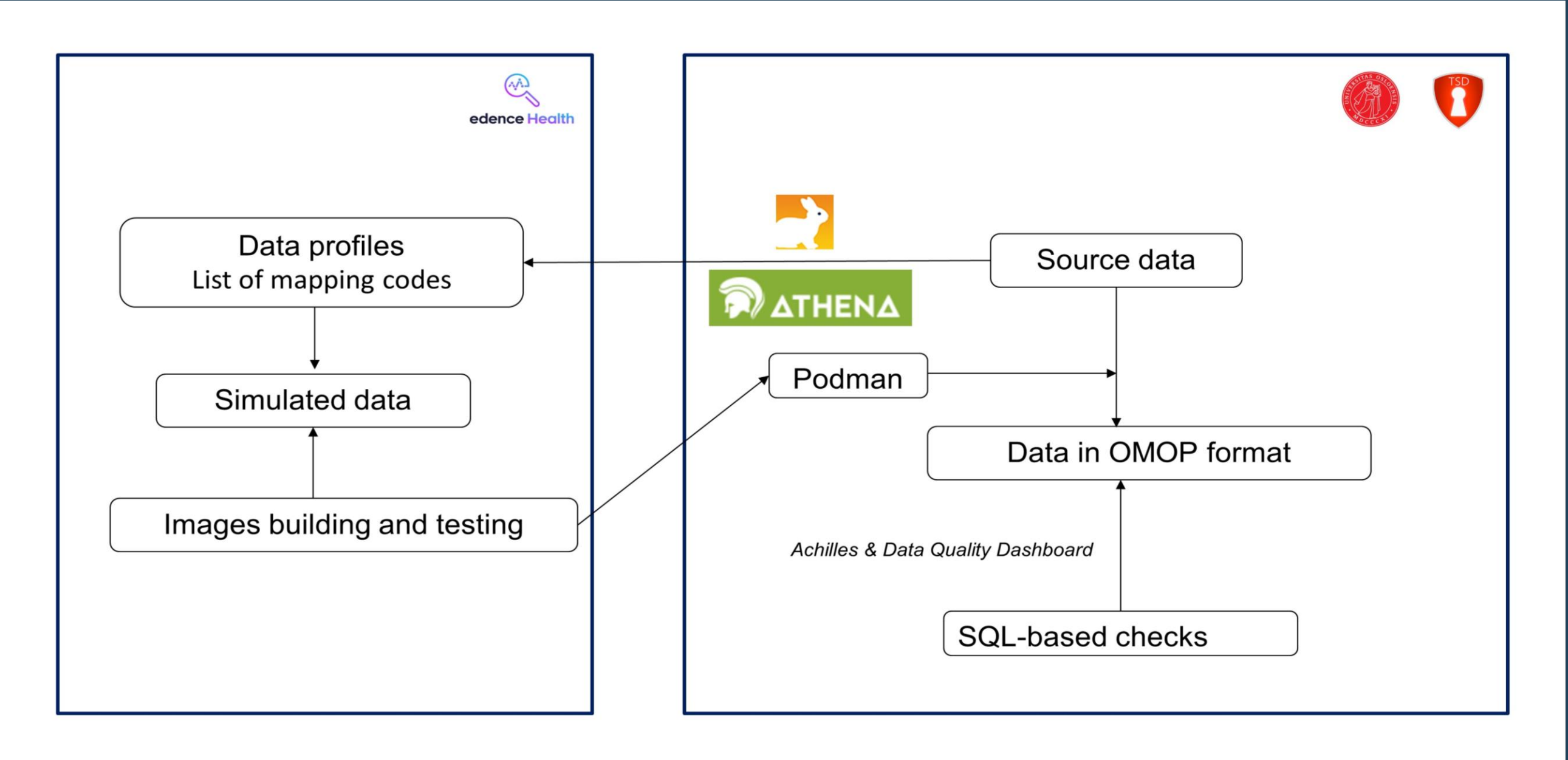


Figure 3: Data quality assessment on MBRN

	Verification				Validation				Total			
	Pass	Fail	Total	% Pass	Pass	Fail	Total	% Pass	Pass	Fail	Total	% Pass
Plausibility	2013	0	2013	100%	287	0	287	100%	2300	0	2300	100%
Conformance	674	5	679	99%	104	0	104	100%	778	5	783	99%
Completeness	384	2	386	99%	9	6	15	60%	393	8	401	98%
Total	3071	7	3078	100%	400	6	406	99%	3471	13	3484	100%

RESULTS

5 508 030 individuals (2018-2020)

- 720 765 pregnancies
- 452 831 mothers
- 440 731 fathers
- 695 569 children

237 non-standard codes were mapped to standard concepts:

- 67 pregnancy related codes
- 48 speciality related codes
- 48 communicable disease related codes
- 46 vaccine related codes
- 17 drug related codes
- 3 procedure related codes

40 custom concepts were introduced to accommodate terminologies that were not supported by OMOP vocabularies. 36/40 codes provide vital information about pregnancies:

- Previous miscarriages before 12 weeks of gestations
- Early preeclampsia
- Sometimes smoking before pregnancy
- Daily smoking at the start of pregnancy
- Hemorrhage more than 1500ml during delivery

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List of OMOP tables:

- Person
- Fact_relationship
- Death
- Provider
- Visit_occurrence
- Condition_occurrence
- Procedure_occurrence
- Drug_exposure
- Measurement
- Observation
- Observation_period