

# Prenatal and childhood immunization and the risk of childhood cancer in the German million children birth cohort - The PRECHIC project -

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Historical birth cohort of >2 million children born between 2004 - 2018 in Germany with maximum follow-up of 18 years resulting in ~16 million person-years with >3,100 childhood cancer cases

## BACKGROUND

- Risk factors largely unknown
- Suggested protective immunological factors (e.g. vaccination)
- Prenatal period might be of interest
- Previous observational studies showed inconsistent results

## Study Objectives:

- Examine vaccination prevalence among children
- Determine the incidence of childhood cancers
- Assess the impact of immunizations on the risk of developing childhood cancer

## METHODS

**Study population:** >2 million children

**Study period:** Birth years between 2004 - 2018



**Study source:** German Pharmacoepidemiological Research Database (GePaRD) with health insurance data of ~20% of the German population

## Available Information:

- Drug dispensations including vaccinations, diagnoses, procedures, and services from both inpatient and outpatient settings
- Sociodemographic information

## Mother/Newborn Data Linkage:

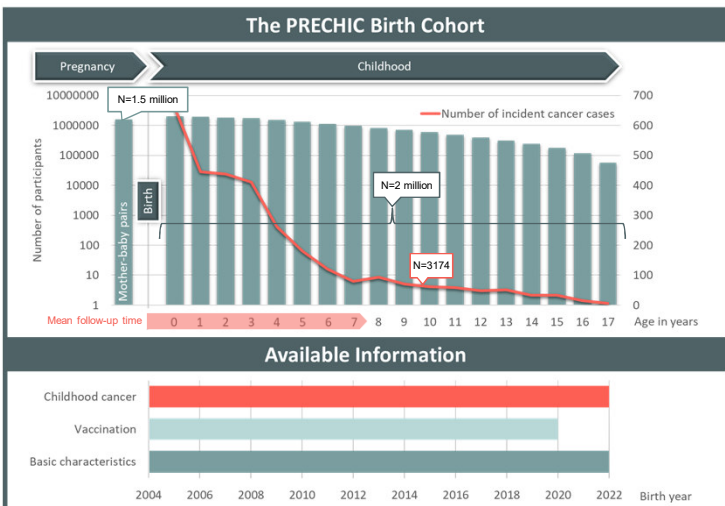
- Unique possibility to link maternal health insurance data to ~75% of newborns to assess also prenatal period

**Follow-Up Period:** From pregnancy or birth until death, end of insurance coverage, or end of observation period (Dec. 31, 2022), maximum follow-up of 18 years

**Statistical Methods:** Target trial emulation to determine the effect of immunization on childhood cancer risk

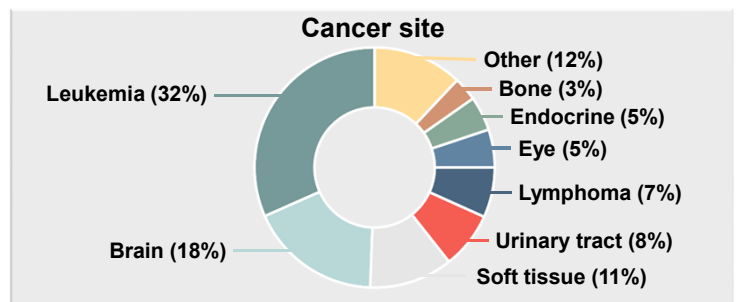
## RESULTS

### Development of historical birth cohort and study modules

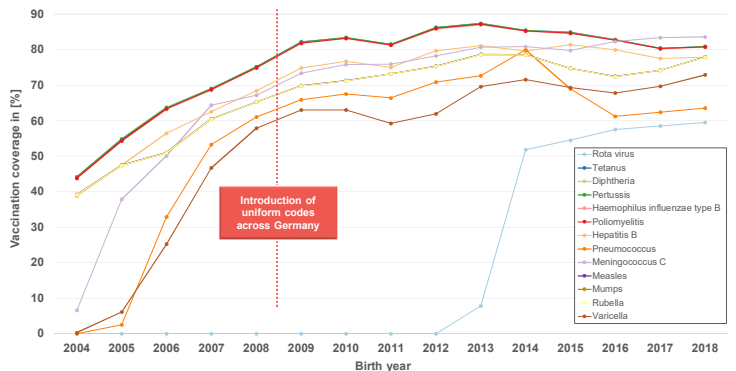


## RESULTS CONTINUED

### Diagnosed cancer sites



### Proportion of complete vaccinated children at age 30 months by birth year



## CONCLUSIONS

### Strengths:

- Absence of non-responder and recall bias
- Maternal risk factors during prenatal period
- Large size of cohort facilitates precise effect estimates and provides a promising approach to investigate the impact of immunization on childhood cancer

### Future plan:

Investigation of further potential risk factors for childhood cancer

## ADDITIONAL KEY INFORMATION

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