

# The Nordic Helicobacter Pylori Eradication Project (NordHePEP)

## - A Nordic Registry-Based Cohort

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### Background

*Helicobacter pylori* is a gram-negative bacterium that infects the stomach in >50% of the global population. Infection is the strongest and most well-established risk factor for gastric adenocarcinoma, but decreases the risk of oesophageal adenocarcinoma. Emerging evidence indicates that *Helicobacter pylori* might be associated also with other gastrointestinal malignancies, i.e. cancer of the liver, pancreas, biliary tract and colorectum.

### Aim

NordHePEP is a population-based cohort created with the purpose to analyse if and how *Helicobacter pylori* eradication treatment is associated with cancer risk.

### Methods

NordHePEP includes all adults (age ≥18 years) having been prescribed and dispensed *Helicobacter pylori* eradication treatment according to the national drug registries in the five Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden) in year 1994-2020 (start and end year vary between countries). We have retrieved and linked individual-level data from multiple national registries including prescribed drug, patient, cancer, population, and cause of death registries.

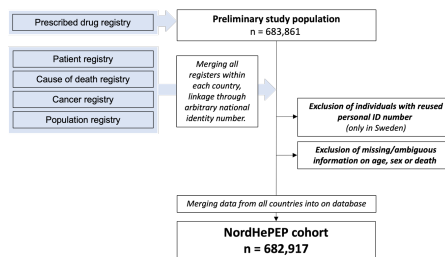


Figure 1 – NordHePEP - participant enrolment.

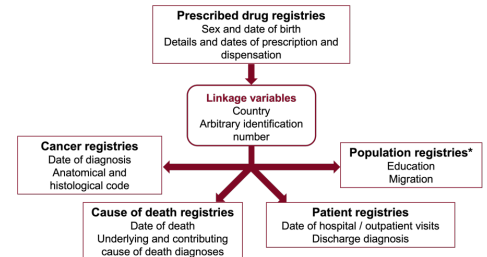


Figure 2 –Registries and variables in NordHePEP

## Results

In total, 682,917 individuals were included in NordHePEP. During a median follow-up of 8.6 years, 46,802 participants developed any cancer, and 15,496 developed a gastrointestinal cancer.

Table 1 – Distribution of *Helicobacter pylori*-eradication treatment in NordHePEP, presented as number of prescriptions (%)

Country	PPI + amoxicillin + clarithromycin	PPI + metronidazole + clarithromycin	PPI + amoxicillin + metronidazole	Combination package
All	269 656 (33.8)	5 569 (0.7)	25 609 (3.2)	496 663 (62.3)
Denmark	158 283 (91.6)	2 963 (1.7)	11 563 (6.7)	- (0.0)
Finland	19 887 (6.1)	38 (0.0)	309 (0.0)	305 238 (93.8)
Iceland	8 748 (99.0)	29 (0.3)	55 (0.6)	- (0.0)
Norway	51 922 (78.6)	1 957 (3.0)	12 139 (18.4)	- (0.0)
Sweden	30 816 (13.7)	582 (0.3)	1 543 (0.1)	191 395 (85.3)

Abbreviations: PPI = Proton pump inhibitor

Figure 3 – Patient recruitment over calendar years for each of the Nordic countries

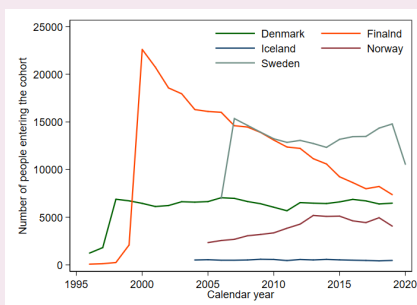


Table 2 – Characteristics of participants in NordHePEP

Variable	Number (%)
Total	682 917 (100.0)
Country (alphabetic order)	
Denmark	146 588 (25.2)
Finland	274 590 (40.2)
Iceland	8 159 (1.2)
Norway	58 725 (8.6)
Sweden	194 855 (28.5)
Sex	
Male	312 419 (45.7)
Female	370 495 (54.3)
Age at baseline (years)	
18-30	54 914 (8.0)
31-40	82 877 (12.1)
41-50	112 806 (16.5)
51-60	140 676 (20.6)
61-70	139 543 (20.4)
71-80	105 907 (15.5)
>80	46 191 (6.8)
Calendar period of inclusion (year)	
1994-2000	48 232 (7.1)
2001-2005	125 216 (18.3)
2006-2010	186 756 (27.3)
2011-2015	177 539 (26.0)
2016-2020	145 174 (21.3)
Charlson comorbidity index	
0	503 083 (73.7)
1	104 858 (15.4)
≥2	49 693 (7.3)
Missing	25 283 (3.7)



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