

INPLASY PROTOCOL

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**Review Stage at time of this
submission:** The review has
not yet started.

Conflicts of interest:
None declared.

Helicobacter pylori reinfection and its risk factors after initial eradication: A protocol for systematic review and meta-analysis

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Review question / Objective: To confirm the global incidence of *H. pylori* reinfection and systematically evaluate its risk factors.

Condition being studied: Helicobacter pylori (*H. pylori*) infection is a common health problem, which closely related to peptic ulcers, gastric cancer, and extragastric diseases. Drugs can successfully eradicate it. However, the recurrence of *H. pylori* often occurs after initial eradication.

Information sources: We will search the following databases from their inception to November 2021: PubMed, Embase, Web of Science, the Cochrane Library, China National Knowledge Infrastructure, the Chongqing VIP Chinese Science and Technology Periodical Database, Wanfang Database, and China Biomedical Literature Database.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 April 2021 and was last updated on 24 April 2021 (registration number INPLASY202140121).

INTRODUCTION

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Condition being studied: Helicobacter pylori (*H. pylori*) infection is a common health problem, which closely related to peptic ulcers, gastric cancer, and extragastric diseases. Drugs can successfully eradicate it. However, the

recurrence of *H. pylori* often occurs after initial eradication.

METHODS

Participant or population: Patients with initial *H. pylori* infection were successfully eradicated.

Intervention: The change of *H. pylori* from negative to positive at one year after initial eradication.

Comparator: *H. pylori* is still negative to positive at one year after initial eradication.

Study designs to be included: Cohort study or cross-sectional study.

Eligibility criteria: The study is considered qualified when the following criteria are met. (i) Cohort study or cross-sectional study; (ii) Patients with initial *H. pylori* infection were successfully eradicated; (iii) Age between 18 to 65 years-old.

Information sources: We will search the following databases from their inception to November 2021: PubMed, Embase, Web of Science, the Cochrane Library, China National Knowledge Infrastructure, the Chongqing VIP Chinese Science and Technology Periodical Database, Wanfang Database, and China Biomedical Literature Database.

Main outcome(s): The rate of *H. pylori* reinfection and its risk factors.

Quality assessment / Risk of bias analysis: Newcastle-Ottawa Scale (NOS) was applied to examine the methodological quality of the included studies. NOS had: 4 items for study subjects (4 points), 1 item for inter-group comparability (2 points), and 3 items for result measurement (3 points), with a total score of 9 (http://www.ohri.ca/programs/clinical_epidemiology/oxford.asp).

Strategy of data synthesis: This meta-analysis will be conducted using STATA 14.0. A random-effects model will be used to estimate the pooled reinfection rate and

its risk factors with 95%CI. Heterogeneity will be assessed using a Chi-square test and I² statistics (P-value <0.10 or I² over 50% were defined as substantial heterogeneity). Publication bias will be estimated by the Begg's test and Egger's test, with P<0.1 indicating statistically significant.

Subgroup analysis: If the source of heterogeneity cannot be found after sensitivity analysis, we will do further subgroup analysis.

Sensitivity analysis: We will use the leave-one-out method for sensitivity analysis to judge the stability of outcome indicators.

Country(ies) involved: China.

Keywords: *Helicobacter pylori*, reinfection, protocol, systematic review, meta-analysis, risk factors.

Contributions of each author:

Author 1 - Renliang Li.

Author 2 - Ping Zhang.

Author 3 - Ziyi Hu.

Author 4 - Ying Yi - The author contributed to the development of the selection criteria, and the risk of bias assessment strategy.

Author 5 - Lisha Chen.

Author 6 - Hengyi Zhang.