

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.